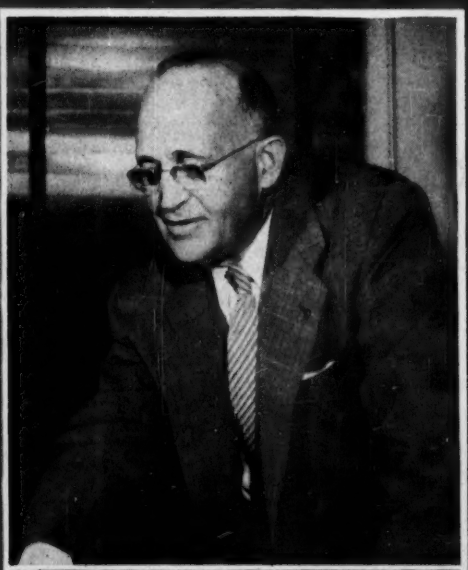
# Chemical Week

August 1, 1953 Price 35 cents



**New Jersey's Lydecker:** His "utility" setup licks pollution, woos industry . . . . . p. 20

**The new zip** in household scourers froths up a fat market for chemical additives . . . . . p. 34

**Snarled politics stunts** Niagara industry growth; poser: more power—but when, how? . . p. 40

**Fire doesn't faze** this novel, chlorine-based plastic; top target: auto bodies . . . . . p. 46

**Pentaerythritol capacity jumps** and so does market—but fast enough to keep pace? . . . p. 56

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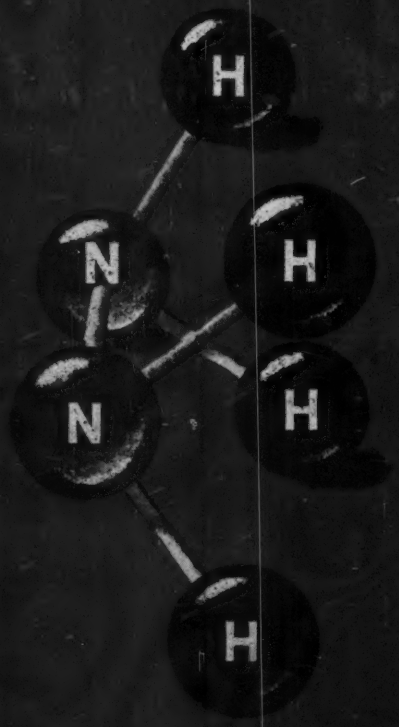


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# Chemical Week

Volume 73 • August 1, 1953 • Number 5



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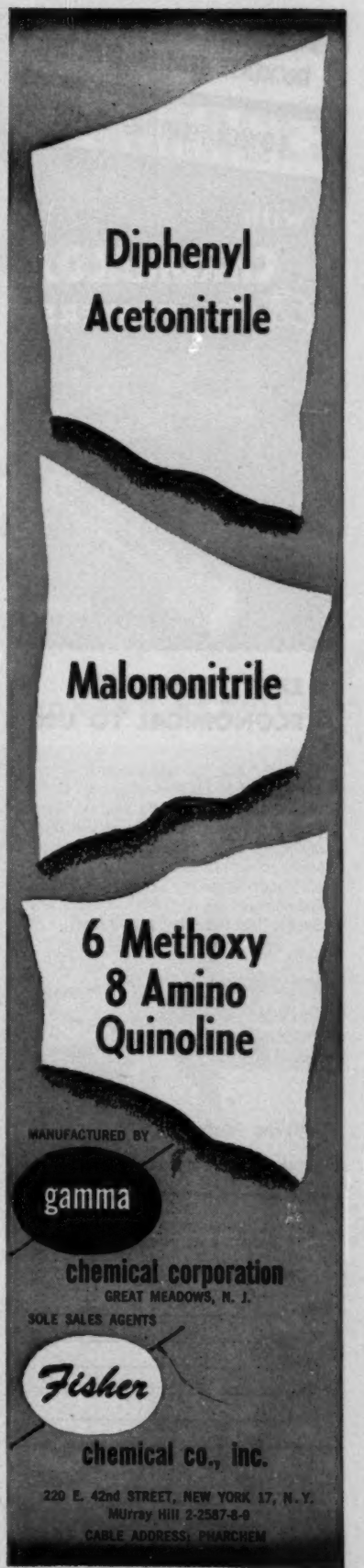

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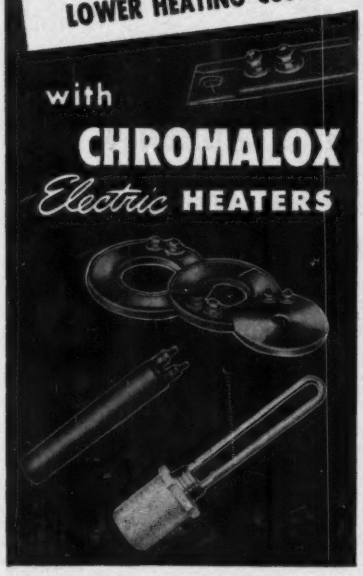

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# OPINION . . . . . .

## Confront the Issues

By now you have undoubtedly read and appraised our report to you last week on tariffs—one of the most significant surveys we have ever made, we think, of chemical executives' views. We undertook this project because in few other spheres do political decisions so directly impinge upon the future of our industry.

Perhaps your views were included among those reported. We don't know, because we asked that the questionnaires returned to us be anonymous—to assure freedom of expression and complete candor. Correspondingly, we have no way of individually thanking the many of you who cooperated. This, then, must be our "thank you."

There are, it seems to us, two ways to tackle any industry problem: either to bury your head in the sand, or to boldly confront the issues, analyze them, and decide on an intelligent course of action.

It is easy and tempting to chant unthinkingly the traditional shibboleths—"Trade, Not Aid," or "Protection—the Hope of the Nation." But this contributes not a jot.

Far more constructive, you'll certainly agree, is for each of us to determine the facts, weigh them, crystallize our opinions. No problem is incapable of being resolved—albeit of the tariff issue's ominous dimensions—if it is accorded the rational consideration of thoughtful men.

We have sought out, via our survey, your views. We will continue to query and report. We regard it as our responsibility to foster the free exchange of ideas, to provide a forum for their expression. We urge your consideration of the issues at stake. We will welcome your comments, your thoughts, your recommendations.

—**W. Alec Jordan,** *Editor.*

## No States, Companies

To the Editor: . . . In your comprehensive report on aerosols (*July 18*) you mention several times a survey made by the Chemical Specialties Manufacturers Assn. . . . which, I gather, details the number of units filled in the U.S. and Canada. . . .

Is it possible to get a further breakdown by geographic area or company . . .?

Vincent R. Lawrence
Minneapolis, Minn.

*The figures cited were compiled for the CSMA by a private accounting firm, which is charged with the responsibility of holding in absolute confidence the content of individual company reports. Hence, neither geographic breakdowns—which might reveal the size of specific operations—or units-filled-per-company is obtainable.*

*However, CW in its report, estimated the status of the top seven fillers.*—Ed.

## Who's for Tea?

To the Editor: . . . You have published a number of reports on water fluoridation . . . so I thought you'd be interested to know that British tea enthusiasts . . . have made a delightful discovery . . .

A dental research team has found that tea contains proportionately as much fluorine as our treated water. . .

So fluorides aside . . . let's have another cup of tea . . .

Carl S. Mansard
Houston, Tex.

## Aerosol Costs

To the Editor: In your CW Report on aerosols (*July 18*) you have stated . . . several breakdown prices for a few leading items. We feel that you should have had more complete information before publishing any figures relative to prices of materials for pressure cans.

Your article stated prices of cans and valves that are ridiculously under the price currently being paid by the fillers themselves. For example, where you show a 22.3¢, six-oz. shave cream . . . we feel that if you are able to fill shave cream for this figure, you should be in the aerosol business and not publications.

Although you state in the paragraph following your price breakdown, that you have only given a rough idea of material cost, many people who read your publication will consider this as a definite price. There are bound to be repercussions.

We in the aerosol filling and packaging field very definitely feel that you should not have quoted any such prices without having first contacted those of us involved in the industry. . . .

We hope that you will seriously consider our "beef," and in the future refrain from giving unnecessary information. . . .

S. Turner
Fluid Chemical Company, Inc.
Newark, N.J.

*Thanks, Reader Turner. The figures we cited were not, in our opinion, either unnecessary or inaccurate. We regard them as significant and repre-*

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*sentative averages as they were defined. Costs vary, of course, by item, volume, location and supplier. Some industry figures we obtained from various fillers and suppliers were higher than those we published; some were lower.*

*We felt the averages quoted were reasonable, pertinent and indicative.*—ED.

## Reporting on Aerosols

TO THE EDITOR: . . . We would like to compliment you on the excellent CW Report on aerosols (*July 18*). . . .

ROBERT MARX
Anchor Plastics Co.
Long Island City, N.Y.

## Reporting on Plastics

TO THE EDITOR: . . . Let me express my thanks for the fine reporting job your magazine has consistently furnished to the plastics industry. . . .

ALFRED SCHECHTER
Vice-president
Chester Packaging Products Corp.
Yonkers, N.Y.

## Lawful Prey

TO THE EDITOR: . . . In your editorial (*July 25*) about the misapplication of plastics . . . you took some liberties with Ruskin. . . .

You quoted: "There is always someone who can make something a little worse and sell it a little cheaper." That reflects what Ruskin said, and accurately, but to be pure about the whole thing . . . the precise quotation is: "There is hardly anything in the world that someone cannot make a little worse and sell a little cheaper and the people who consider price only are this man's lawful prey." . . .

J. A. GINGRICH
Albany, N.Y.

*Lawful prey are we too for Reader Gingrich and the other half dozen erudite readers who caught us tersing Ruskin.*—ED.

# DATES AHEAD

**American Soybean Assn.,** 33rd annual convention, Jefferson hotel, St. Louis, Mo., Aug. 20-21.

**Conference on Nuclear Engineering,** University of California, Berkeley, Calif., Sept. 9-11.

**American Institute of Chemical Engineers,** Fairmont and Mark Hopkins hotels, San Francisco, Calif., Sept. 13-16.

**The Electrochemical Society,** Ocean Terrace hotel, Wrightsville Beach, N.C., Sept. 13-16.

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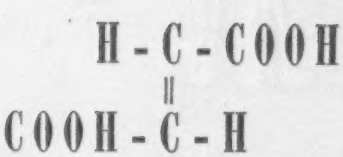

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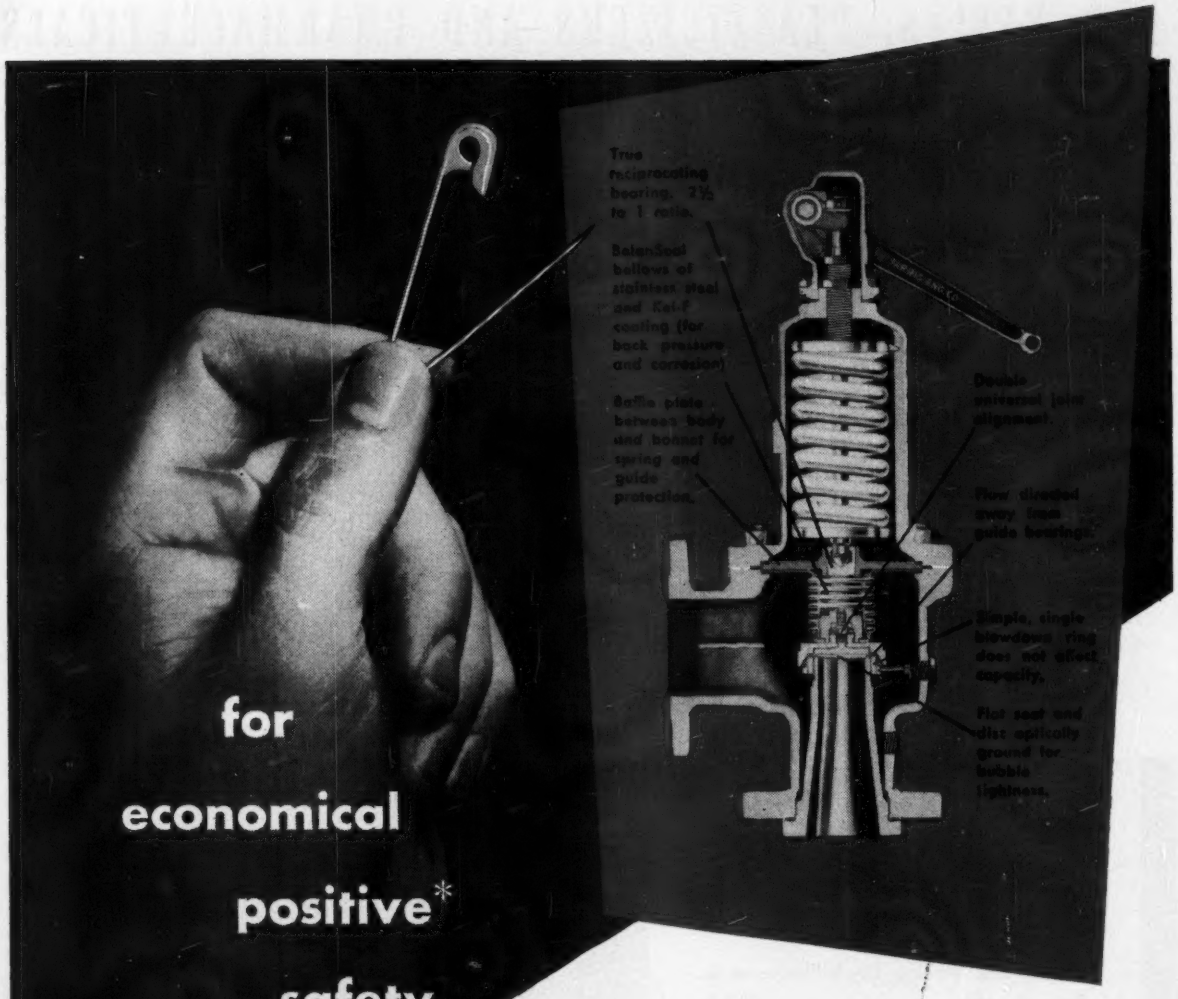
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Chemical Week
BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

## NEWSLETTER

You'll likely hear a lot more about levulose. Currently it's classified as a rare sugar, but Pfanstiehl Chemical Co. (Waukegan, Ill.) has a new process that may cut its cost more than half. Don't ask what the new process is—patent applications have only recently been filed, and Pfanstiehl isn't talking about details.

Cheap levulose would be a boon to hospital patients receiving sugar intravenously. Levulose is absorbed faster than glucose, thus permitting faster feeding. Hospitals would save, too, for time savings cut the nursing workload.

The market is now estimated at 10% of intravenous solutions, or 30,000 lbs./month. But many hospitals say that low-price levulose could replace practically all glucose—and that's 300,000 lbs./month.

•

On the technological manpower front, the cold war is going against the U. S.—at least numerically.

Russian colleges are now turning out an annual crop of 30,000 engineers with five years' education, says the National Planning Assn., compared with about 23,000 U. S. graduates of four-year courses.

Calling for new national policies, NPA warns that even when the "bumper baby crops of the '40s" relieve the current shortage of college-agers, there still won't be enough trained technologists unless the nation revises its policies on military deferments and reserve programs, training, employment opportunities and health, and all-out mobilization.

•

Despite the unstinted endorsement by the National Agricultural Chemicals Assn., it now appears that the bill offered by Rep. A. L. Miller (R., Neb.) to put regulation of chemical pesticides under the Food & Drug Administration (H.R. 4277) is not likely to pass.

The bill, now pending before a House committee, is also favored by the U. S. Dept. of Agriculture. But FDA, while agreeing with the principle of the proposed legislation, doesn't like the procedure specified, wants a setup more like that governing drugs.

Says Lea Hitchner, NACA executive secretary, "It is our belief that this procedure's recommendations on tolerances by impartial experts, followed by public hearings, and judicial review if required, is realistic and workable."

•

The Senate last week chopped controversial portions out of the simplification bill—the only trade liberalization measure demanded by the Administration this session. The House and Senate versions must agree in committee, and chances are that the Senate's views will prevail.

Chemical industry spokesmen persuaded key senators that certain provisions of the bill were too debatable to be acted upon without further hearings; and since the Congressional schedule didn't allow time for that, the Senate decided instead to kill those provisions.

Portions killed: Those that would change the basis for valuation of imports, and that would determine the value of materials sent abroad for processing and then reimported.

Polyoxyethylene bread softeners (Sta-Soft, Repco, Myrj 45) suffered another blow this week as the National Research Council's Food Protection Committee issued its report (CW Newsletter, June 20). High spots:

- "No new food additive should be introduced . . . as long as reasonable doubt remains concerning its safety. . . . Experimental studies . . . indicate the possibility of unfavorable reactions. The possibility of these outweighs the arguments advanced to support its use."
- "There is no available evidence bearing upon the susceptibility to injury of . . . individuals in the older age groups or . . . with impaired liver or renal function."
- ". . . The presently available data fail to demonstrate that polyoxyethylene stearate is safe . . . under all patterns of dietary consumption . . . for all segments of the population.'

•

This week marks the end of Colgate-Palmolive-Peet's royalty payments to Rystan for use of its chlorophyll patents (CW Newsletter, June 27). Rystan moved to dismiss Colgate's suit charging that its patent is invalid, but the motion was denied.

And now Bristol-Myers is asking a declaratory judgment to invalidate Rystan's patent, says it will continue to make its chlorophyll toothpaste after September 21 without benefit of license.

•

It hasn't been in the headlines—or even in the footnotes, but Phillips Petroleum is dabbling in polyethylene. It now has in "substantial pilot quantities" a hard, brittle, wax-like polymer suitable for blending with flexible polyethylene to boost the melting point; as a constituent of candles, wax coatings and polishes; and as a paper and cloth laminant.

•

Selling in 48 states can involve 48 separate sales tax headaches, especially for fertilizer and drug makers. North Dakota has exempted fertilizers and prescription drugs from its 2% levy, but proposals to exempt drugs failed in California, Georgia, Ohio, South Carolina and Tennessee. A proposal to exempt fertilizer was vetoed by the governor in Arkansas and a similar one failed to pass in Oklahoma.

•

Despite cutbacks in federal research funds (CW, July 4), industry is still much interested in Washington-sponsored work. Indicative is the recent appointment by a group of California firms of a full-time Washington liaison man, whose sole job is to follow government research and send his sponsors reports.

Industry is exerting pressure on federal agencies not only to publish results of completed jobs faster, but also to issue progress reports on projects under way.

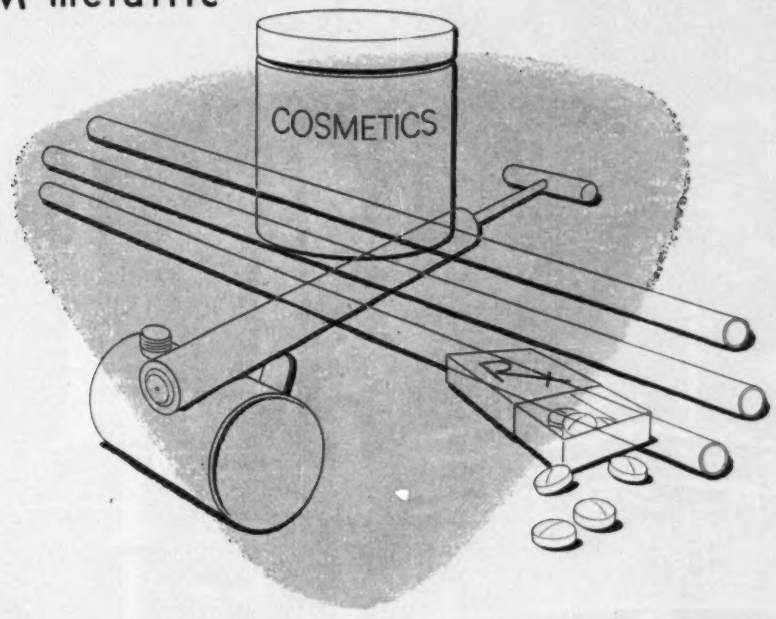
•

Democrats are frightened by a synthetic rubber bogeyman that doesn't exist—fear that the government will "give away" the plants. That, at least, is private industry opinion in Washington. The government, experts say, will probably get replacement value minus, say, 10% for the plants that are sold. That could amount to more in some cases than they cost the government.

And don't think that rubber and petroleum firms will be the only bidders. Some chemical firms have their eyes on butadiene and styrene facilities, will certainly participate in the bidding.

**. . . The Editors**

# SODIUM metallic

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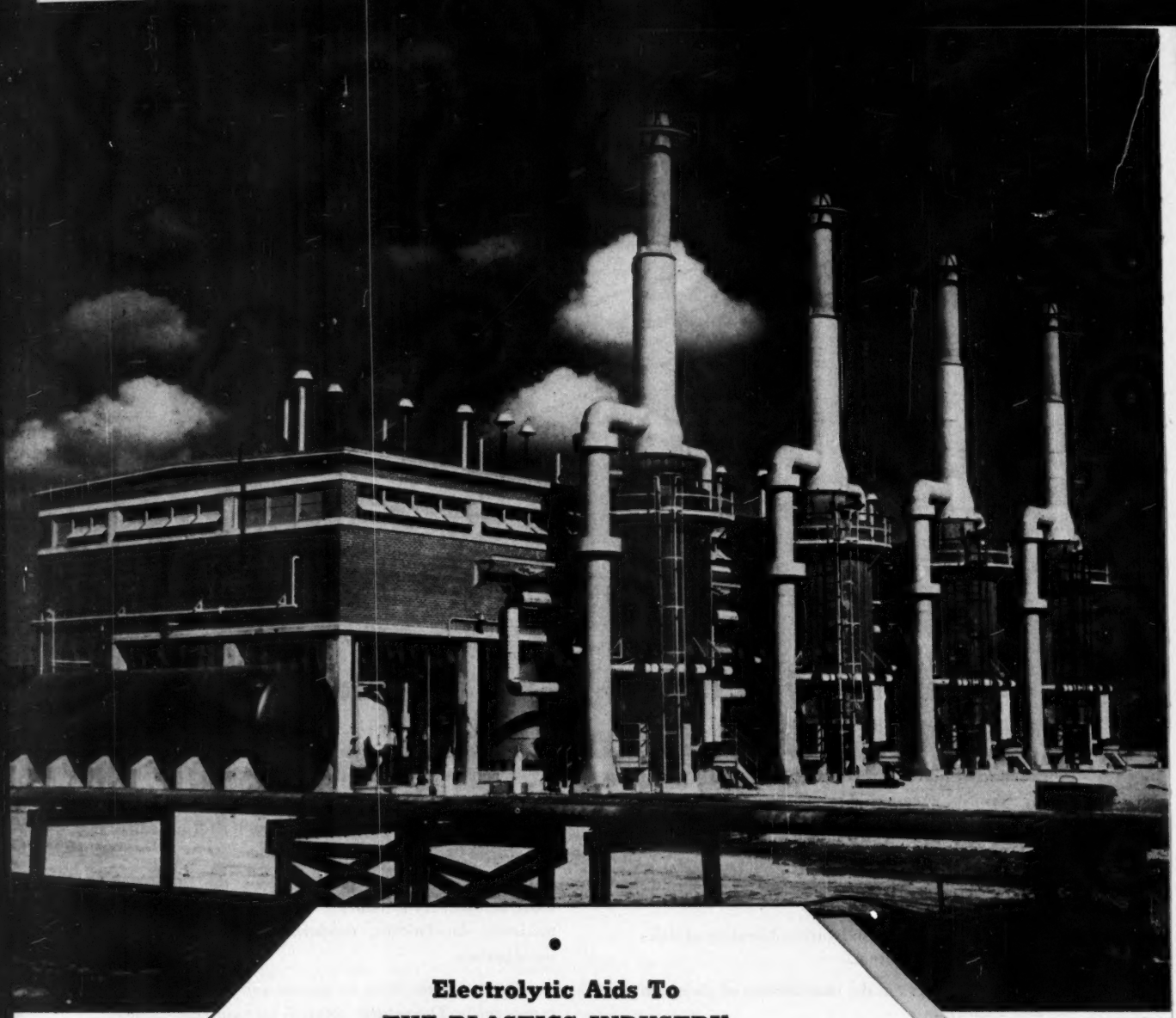

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# BUSINESS & INDUSTRY . . .

## Raises a Question

**Capitol Hill has given the Army a go-ahead signal on its plan to lease the 200 ton/day chlorine plant at Muscle Shoals, Ala., built to supply chlorine and caustic soda for the secret "phosphate development works" located nearby.**

The Army decided to lease the plant when it discovered that because of process improvement it would probably not need more than half of the production of the chlorine plant when it begins large-scale manufacture of organic phosphorus compounds in September.

The go-ahead is not, however, without qualifications. The Real Estate subcommittee of the House Armed Services Committee insisted that contracts be first submitted to the subcommittee for approval.

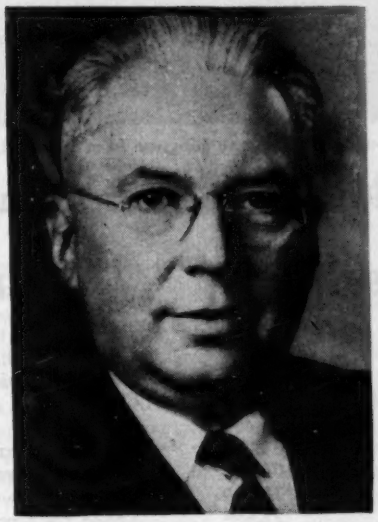
Such a requirement was deemed necessary, says Iowa Rep. Paul Cunningham, who chairmans the group, because as yet the Army isn't sure exactly how much chlorine it will use. To begin with, it will use about 20 tons/day. If its improved process works out, it will likely use 100 tons; if the process isn't successful, it could use more.

**Why Was It Built?** During the hearing, it was brought out that when the Army was first considering whether it should construct the $21-million plant back in 1951, it received an offer from Hooker Electrochemical to build—even to finance—such a plant if an "economic location" were picked. But the Army went ahead with construction using government funds.

While the exact nature of the product the Army is to produce is guarded for security reasons, the chlorine apparently is to be transformed into some such material as phosphorus oxychloride or pentachloride. The caustic produced by the mercury cell is used to recapture some of the hydrochloric acid given off as a by-product of further reactions; the resulting salt is recycled.

**Stand-by or Lease?** With process developments obviating the need for half of the proposed output, the Army was faced with several alternatives: It could (1) operate only the part of the plant it could use, putting the rest in stand-by; (2) operate the entire plant, selling the extra chlorine and caustic; (3) put the whole plant in stand-by, buy chlorine, caustic, and sell salt; (4) lease the entire plant, with the understanding that the lessee supply Army needs for chlorine and caustic; or (5) sell the plant.

Hooker plumped for the third alternative for this reason: the plant was built when it would have been easy for the Army to recapture its own plants, which were then leased to industry. "If the government now leases to industry its latest and newest facility," it says, "output will soon be so integrated in the industrial stream as to leave the government, in the future, in exactly the same position in which it found itself in January, 1951, when a sudden demand . . . arose and the government chose to build a new facility rather than recapture those it already owned."



**IOWA'S CUNNINGHAM: Army doesn't know how much chlorine it needs.**

The Army, however, prefers the lease arrangement since, if it put the plant into stand-by, it would have to pay about $250,000 yearly for maintenance, buy chlorine and caustic and sell salt, and, in addition, lose the revenue—estimated at $2 million/year—it could get by leasing.

Under its operating agreement, Monsanto has first right to refuse lease. Because it has 60 days to make up its mind, the Army can't advertise for bids before late September. Since the secret phosphate works is expected to be operating by then, a more definite picture of Army consumption may by that time provide a firm basis for leasing offers.

But whatever the outcome, the decision to lease the plant raises again the question of whether the government should use its capital to erect plants that could compete with those built by private industry. Companies which, unlike Hooker, have no special interest in the type of cell used to make chlorine, frankly would prefer plant sale to lease or shutdown. Like the producers of ammonia (*see p. 55*), chlorine makers are sure to press for sale of government plants. And since Muscle Shoals could easily be the key to Southwest's chlorine market, ownership would be quite a plum.

## Company Spirit Inciter

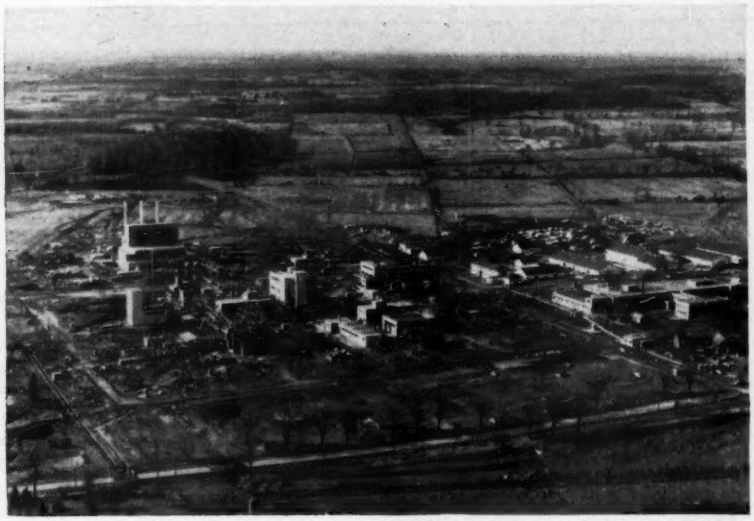
**Union Carbide and Carbon has joined the small group of chemical companies that are implanting "company spirit" into rank-and-file employees by helping them buy the corporation's common stock (*CW, Jan. 10*).**

This is an optional part of Carbide's new savings plan for employees, which takes the place of the old two-year plans that offered only short-term benefits.

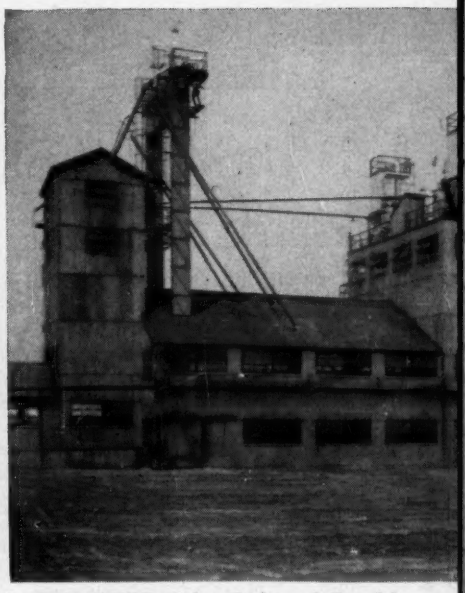
While the short-term features are still available in the new plan, there's also added provision for long-range investment opportunities with option to buy Carbide capital stock shares, or government bonds, or both. The stock will be purchased on the open market, not from the corporation.

Anyone who has been with the company a year or more may take part in the short-term savings program, but only employees with three or more years' service may participate in the long-range plan. A worker who's eligible for either program may direct that his payments be made into either fund, or divided between short- and long-term arrangements.

In either part of the new plan, an employee may have up to 7½% of his normal straight-time earnings deducted, up to a maximum of $83/month, for payment into the savings funds. The company then contributes 10%, 20%, or 30% additional, depending on whether the employee has one, two, or three or more years of Carbide service.



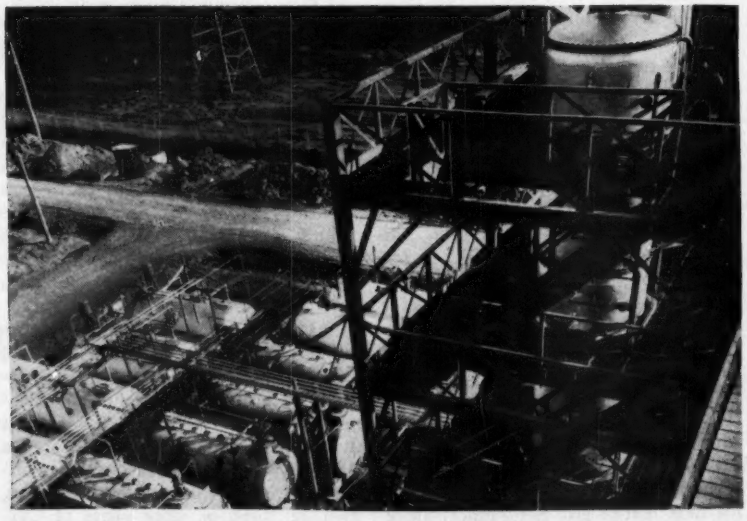
INTEGRATED: CIL plant will ship nylon intermediates to Kingston from Maitland.



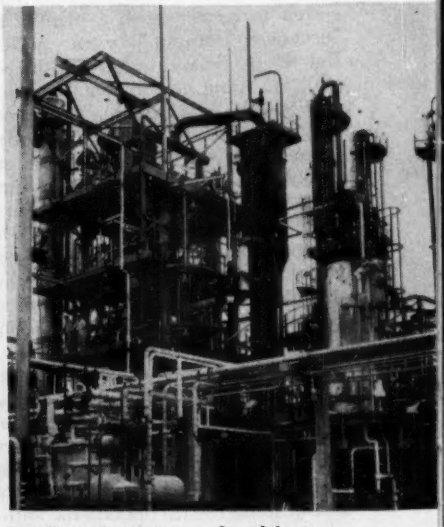
LATEST FIRST: Cabot Carbon of Canada's . . .

# Canadian Chemical Industry

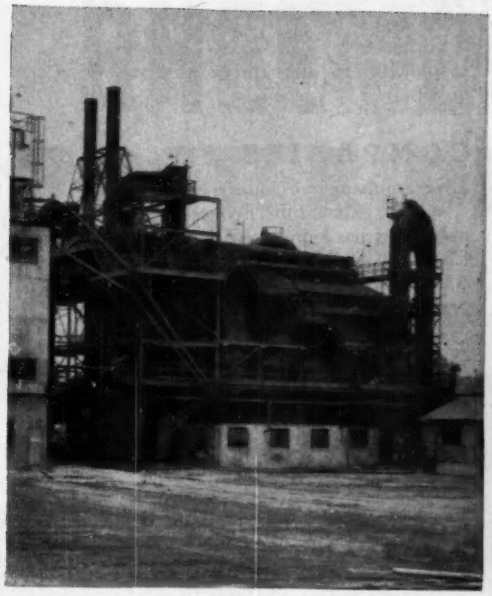
| 1951 | | 1952 | |
|---|---|---|---|
| **Total Sales: $776,489,000** | | **Total Sales: $806,200,000** | |
| IN THOUSANDS OF DOLLARS | | | |
| Coal tar distillation | 12,077 | Coal tar distillation | 12,490 |
| Heavy chemicals | 117,823 | Heavy chemicals | 114,379 |
| Compressed gases | 15,378 | Compressed gases | 15,923 |
| Fertilizers | 74,489 | Fertilizers | 78,422 |
| Medicinals and pharmaceuticals | 89,249 | Medicinals and pharmaceuticals | 90,546 |
| Paints and varnishes | 104,839 | Paints and varnishes | 107,327 |
| Soaps and washing compounds | 73,719 | Soaps and washing compounds | 78,577 |
| Toilet preparations | 22,535 | Toilet preparations | 25,291 |
| Inks | 10,583 | Inks | 10,919 |
| Vegetable oils | 60,202 | Vegetable oils | 53,033 |
| Adhesives | 11,437 | Adhesives | 11,053 |
| Polishes and dressings | 13,245 | Polishes and dressings | 15,960 |
| Plastics (primary only) | 39,370 | Plastics (primary only) | 34,917 |
| Miscellaneous | 131,543 | Miscellaneous | 151,363 |



MORE 'N MORE: St. Maurice Chemicals will swell Canada's formaldehyde output.



LEADS: Shawinigan—phenol-from-cumene.



. . . carbon black plant, will cut imports from U. S.

DUE IN SOON: CIL's $13-million polyethylene investment will pay off this fall.

# Boom Signs A'Plenty North of the Border

**Waiting for a long-pending prediction to come true is like gazing down the track straining for the first glimpse of an overdue train. You catch a faint humming, then a rumble down the rails before the train rounds the bend. So it is with Sir Wilfred Laurier's off-quoted forecast . . . "the 20th Century will belong to Canada." The crescendo is building up, and the chemical industry is leading the way.**

This week it's clear how things stand, what is slated to add to the surge before year's end. The boom's on, more than a score of new plants are scheduled for completion this year. New output will swell the Dominion Bureau of Statistics figures for '53, should far exceed 3% gain in production value registered in 1952.

New chemical plants in Canada today fairly well blanket the industry, include:

• Bakelite (Canada) Ltd.'s $1-million formaldehyde plant at Belleville —which came onstream last April, will turn out some 30 million lbs./year of formaldehyde to just about satisfy current domestic demand. Company officials say about half their initial production is slated for Bakelite's production of phenolic and urea resins. The rest will be placed on the market for other consuming industries.

• B. A. Shawinigan Ltd.'s petrochemical plant, turning out phenol and acetone via the cumene process, started up in Montreal East in May, is due to produce some 13 million lbs./year of phenol, 8 million lbs. of acetone by the end of next year. Jointly owned by British-American Oil and Shawinigan Chemicals, it cost around $4 million.

• Canadian Resins & Chemical's plant expansion at Shawinigan Falls, Que., also got under way in May, is producing vinyl plastic film. The other leg of the over-all expansion project, still under construction, will turn out a complete line of polyvinyl chloride and copolymer resins. Complete price-tag: $3 million.

• Cabot Carbon of Canada's spanking new $3-million plant in Sarnia boasts: "first Canadian production of carbon blacks for use in the rubber industry." Capacity stands around 25 million lbs./year when full-scale production is reached. Significantly, Canada imported 60 million lbs. of carbon black from the U.S. last year valued at $3.8 million.

• Dominion Tar & Chemical Co. added to Canada's internal ethylene glycol production (Dow Chemical also has a plant at Sarnia) in May by bringing in a new plant at Montreal East. Its contribution: 30 million lbs. of ethylene glycol annually.

• Shell Oil Co. of Canada also logged a first early in April: first production in Canada of isopropyl alcohol output at present: 20 million lbs. (12 millions of isopropyl, 8 million lbs. acetone). Considerable shift in proportions is possible, however, if demand requires a change; production of various other associated products is expected soon.

• St. Maurice Chemicals, the joint enterprise of Heyden Chemical Corp. and Shawinigan Chemicals, is adding to formaldehyde output in Canada. Its $3-million plant at Varennes, Que., is tuned to a rate of some 30 million lbs./year. Also produced: 2-3 million lbs./year of pentaerythritol.

As in Bakelite's case, St. Maurice will tag a large chunk of its output for captive use, will turn out "penta." This month Canadian Chemical Co. is expected to produce "penta" also.

• Western Chemicals, Ltd. will jump into production of chlorine caustic soda, muriatic acid late this summer. The plant site: Duvernay, Alta.; the cost: $3.5 million; capacities: 20 million tons chlorine, 24 tons caustic, and 3,500 tons of muriatic. The plant is being touted as a completely self-contained unit, will obtain its basic raw materials (salt and natural gas) from wells drilled in the area.

• Imperial Chemical Industries of Canada Ltd.'s Terylene (Dacron) synthetic fiber plant at Millhaven, Ont., to cost some $20 million has not yet launched full-scale construction, but promises to get into gear soon. With a pilot plant scheduled for completion sometime next summer, ICI officials confidently predict initial output of 700,000 lbs. of Terylene, hope the main plant will get onstream by the middle of 1955.

At first, ICI will be compelled to bring in para-xylene—chief raw material—or perhaps buy it in an intermediate stage, such as di-methyl

teraphthalate. Later it hopes to produce para-xylene locally as part of the over-all petroleum expansion program now booming in Sarnia.

• Canadian Industries Ltd. has two contributions, one well-launched, the other due sometime this fall. Expanded facilities doubling the production capacity of its nylon plant at Kingston, Ont., are now in operation, will be boosted up higher when a nylon intermediates plant at Maitland, Ont. gets rolling.

Further, CIL is pushing a $13-million polyethylene plant, using natural gas sources from the Leduc-Woodbend field as its source of raw material. It will produce polyethylene flake, to be sold to processors throughout Canada.

• Canadian Chemical Co.'s $55-million plant—to produce 25 million lbs. of cellulose acetate flake annually—will be a virtual pivot around which Celanese Corp. of America plans to build a $250-million industrial empire. Scheduled for completion late this year (outside the burgeoning frontier city of Edmonton, Alberta) the plant will initially serve a dual purpose: to supply basic organic chemicals for broad-scale application in the Canadian economy and to turn out enough cellulose acetate to meet the requirements of Canada's textile and plastic industries. Chief raw materials: digested pulp from British Columbia, oil refinery gases, natural gas from Alberta.

Company officials expect to have enough cellulose acetate rolling within the year to allow for export, plan also to export one or two of the higher-price chemicals—such as pentaerythritol.

• Dow Chemical of Canada is building a $1-million synthetic latex unit at its Sarnia site, has already brought its styrene monomer unit into operation. Total cost: around $5 million.

• Electric Reduction Co. is building a $5-million phosphorus plant at Varennes, Que., will start up sometime around Oct. 1. Company developmental engineers are considering making other phosphorus-derived compounds, not now turned out in Canada.

• Howards & Sons (Canada) Ltd., at Cornwall, Ont., will start turning out certain specialty chemicals—cyclohexanol, methylcyclohexanol—within the month. Initial production will be at a rate of 1.25 million lbs./year. The process again is as closely coordinated as possible—typical of the Canadian chemical industry version of 1953. Raw materials will be obtained from CIL's Cornwall plant, will work through intermediate products to eventual use as plasticizers in the textile, paint, cellophane markets.

It all adds up to one conclusion: Canada's chemical industry, true to forecast, is on the move—and there's lots of room to grow.

## EXPANSION . . . .

**Titanium Dioxide:** American Cyanamid's Calco Div. plans to build a $14-million titanium dioxide plant outside Savannah, Ga. Construction will begin sometime after Oct. 1, is expected to be completed early in 1955. The new plant will be Calco's third unit turning out titanium dioxide, will be built to accommodate future doubling of output.

•

**Anhydrous Ammonia:** The Mill Creek Chemical Co. will build an anhydrous ammonia plant in the Salt Lake City, Utah, area. Daily capacity of the plant will be about 180 tons. Financing will be handled by Glore, Forgan & Co., Chicago and New York; construction by Henry C. Beck Co., Dallas, Tex. Company officials are principally shooting at markets in the Northwest, will sell to both fertilizer manufacturers and direct ammonia distributors.

## COMPANIES . . . .

**More company purchases:**

• The Mississippi Federated Cooperatives has purchased the Federal Chemical Co., Meridian, Miss., will continue to manufacture fertilizer with present personnel.

• Procter & Gamble, Cincinnati, O., has bought property owned for 125 years by the American Red Cross in downtown Cincinnati, will use it as the site for office buildings. Construction date has not been announced.

•

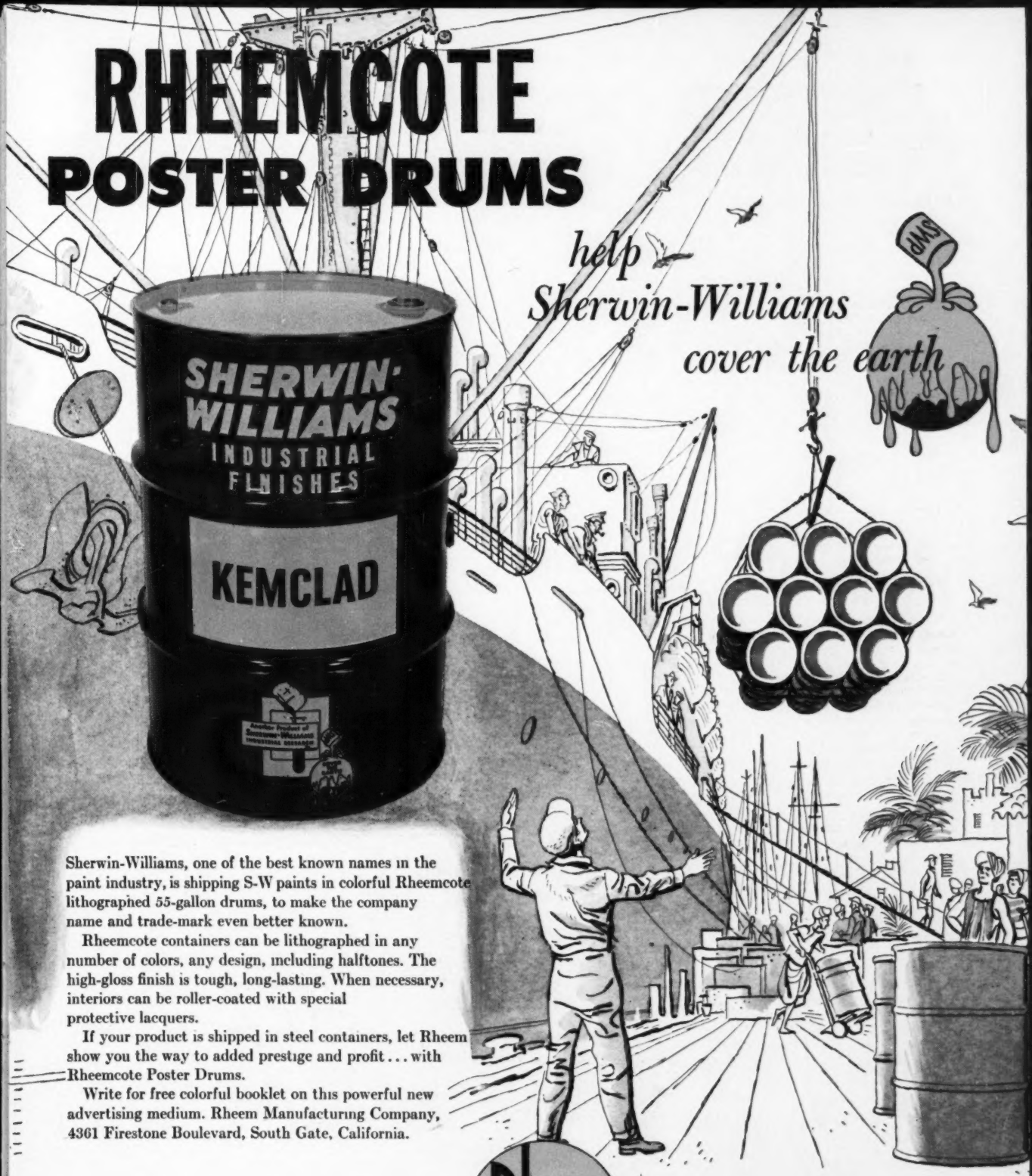
**Stanolind Oil** and Gas Co. has notified its employees that its chemical plant will close down Aug. 1 unless more raw materials become available soon. Stanolind has been dependent on Carthage-Hydrocol, Inc. for its basic raw product requirements, has been hard pressed since June 17 when Hydrocol shut down to permit designing and installation of new equipment to increase production of gasoline made from natural gas. The plant is not expected to reopen for several months.

## Ingenuity at Work

TAKING MIND of the Seabees' "the impossible takes us a little longer"—Oil Storage Co., Apapa, literally shoves its products in bulk from Lagos, Nigeria, through 1,200 miles of West African waterways to Garoua, French Cameroons. Tugs push barge trains (eight of them linked together) up vine-clogged lagoons, down winding creeks to the Benue River. The last stretch, down the Benue as far as Garoua, is navigable only during an annual 2½-month rainy season, forces Oil Storage to build up supplies for quick shuttle runs from transit depots. Total of 1,500 tons are handled annually.

# RHEEMCOTE POSTER DRUMS

*help Sherwin-Williams cover the earth*




Sherwin-Williams, one of the best known names in the paint industry, is shipping S-W paints in colorful Rheemcote lithographed 55-gallon drums, to make the company name and trade-mark even better known.

Rheemcote containers can be lithographed in any number of colors, any design, including halftones. The high-gloss finish is tough, long-lasting. When necessary, interiors can be roller-coated with special protective lacquers.

If your product is shipped in steel containers, let Rheem show you the way to added prestige and profit... with Rheemcote Poster Drums.

Write for free colorful booklet on this powerful new advertising medium. Rheem Manufacturing Company, 4361 Firestone Boulevard, South Gate, California.

*Sell as you ship with* **Rheemcote drums**

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(Advertisement)

## CSC AMINES

**Furfurylamine (2-furanmethylamine)**
**$C_4H_3OCH_2NH_2$**

Highly reactive heterocylic compound. Undergoes reactions typical of primary amines. Properties suggest application in the synthesis of dyestuffs, resins, pharmaceuticals, rubber, and petroleum additives.

Sp. Gr. at 25/4°C
(pure material) ..... 1.0502
Boiling Pt. at 760 mm
(pure material) ..... 145-146°C
Melting Pt. ..... –70°C approx.

**2-Hydroxyethyltrimethylammonium bicarbonate (45% aqueous solution)**
**$(CH_3)_3N(HCO_3)CH_2CH_2OH$**

This quaternary ammonium salt appears to offer many possibilities as a latent alkaline catalyst for resins and other processes. Also as an intermediate for preparing choline salts.

Freezing Pt.
(45% solution) ..... –21.3°C
Refractive Index $n_D$ at
25°C (45% solution)..... 1.3967

## CSC ALKANOLAMINES

These compounds readily undergo a wide variety of reactions. They form substituted amides with acids, esters, anhydrides and acyl halides. They also react with other compounds including alkyl halides, aldehydes, ketones, and carbon disulfide.

The alkanolamines provide raw materials for synthesis; emulsifying agents in forms of their soaps, raw materials for textile specialties, drying oils, and synthetic resins.

**2-Amino-1-butanol $CH_3CH_2CHNH_2CH_2OH$**
Sp. Gr. at 20/20°C ..... 0.944
Boiling Pt. at 760 mm ..... 178°C
Melting Pt. ..... –2°C

**2-Amino-2-ethyl-1,3-propanediol**
**$CH_2OHC(C_2H_5)(NH_2)CH_2OH$**
Sp. Gr. at 20/20°C ..... 1.099
Boiling Pt. at 10 mm ..... 152-153°C
Melting Pt. ..... 37.5-38.5°C

**Tris(hydroxymethyl)aminomethane**
**$(CH_2OH)_3CNH_2$**
Boiling Pt. at 10 mm ..... 219-220°C
Melting Pt. ..... 171-172°C

**N-Methylglucamine**
**$CH_3{\cdot}NH{\cdot}CH_2(CHOH)_4{\cdot}CH_2OH$**

This is a polyhydroxyamine with properties that suggest application in the synthesis of surface-active agents, pharmaceuticals, dyeing assistants and other fields. It undergoes many reactions typical of secondary amines. It is soluble in water, and pH of a 1% aqueous solution at 25°C is 10.5.

Melting Pt. ..... 128-129°C

## CSC AMIDES

**Dimethylformamide $H{\cdot}CO{\cdot}N(CH_3)_2$**

A powerful solvent for a wide variety of materials including nitrocellulose, cellulose acetate, cellulose triacetate and vinylite resins. It exhibits selective solvent properties—its low volatility and stability to heat facilitate easy, low-loss recovery. It possesses outstanding solvent properties for many common gases.

Sp. Gr. at 25/4°C ..... 0.9445
Boiling Pt. at 760 mm ..... 153°C
Melting Pt. ..... –61.0°C

## CSC CHLORONITRO-PARAFFINS

This versatile group comprises stable liquids miscible with most organic solvents, including the lower alcohols, glycols, esters, ethers, petroleum hydrocarbons, mineral oils, and vegetable oils. The chloronitroparaffins are excellent as solvents for fats and waxes and as anti-gelling agents in certain types of rubber cement.


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FOR
## 22 UNUSUAL OPPORTUNITIES

Here are 22 CSC new-horizon chemicals which might help improve your products or processes and your market opportunities. They bear evaluating. Our Market Development team is prepared to work with you in developing these for your profitable use. Write today on company letterhead for technical data sheets and samples.

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One of this group 1,1-dichloro-1-nitroethane is a powerful fumigant for insect pests attacking stored fur, tobacco, and a variety of foodstuffs.

**1-Chloro-1-nitropropane $CH_3CH_2CHClNO_2$**
Sp. Gr. at 20/20°C ..... 1.209
Distillation Range (90%)..... 139.5-143.3°C

**2-Chloro-2-nitropropane $CH_3CClNO_2CH_3$**
Sp. Gr. at 20/20°C ..... 1.193
Distillation Range (90%) ..... 129.0-132.3

**1,1-Dichloro-1-nitroethane $CH_3CCl_2NO_2$**
Sp. Gr. at 20/20°C ..... 1.405
Distillation Range (90%)..... 122.0-125.0°C

**1,1-Dichloro-1-nitropropane**
**$CH_3CH_2CCl_2NO_2$**
Sp. Gr. at 20/20°C ..... 1.314
Distillation Range (90%)..... 141.0-143.6°C

## CSC NITROHYDROXY COMPOUNDS

Of particular interest in chemical synthesis. One compound of this group has shown usefulness as a heat sensitizer for rubber latex; another as a high-boiling solvent for zein, cellulose acetate, and oil soluble dyes. They are also useful as mild oxidizing agents.

**2-Nitro-1-butanol $CH_3CH_2CHNO_2CH_2OH$**
Boiling Pt. at 10 mm ..... 105°C
Melting Pt. ..... –47 to –48°C

**2-Nitro-2-ethyl-1, 3-propanediol**
**$CH_2OHC(C_2H_5)NO_2CH_2OH$**
Melting Pt. ..... 56-57°C

**2-Nitro-2-methyl-1, 3-propanediol**
**$CH_2OHC(CH_3)NO_2CH_2OH$**
Melting Pt. ..... 147-149°C

**2-Nitro-2-methyl-1-propanol**
**$CH_3C(CH_3)NO_2CH_2OH$**
Melting Pt. ..... 90-91°C

**Tris(hydroxymethyl)nitromethane**
**$(CH_2OH)_3CNO_2$**
Melting Pt. ..... 165-170°C

## CSC POLYSACCHARIDES

**Native Dextran 1,6' α-pyranose polymer**

Native dextran is currently being evaluated in the fields of food, cosmetics, paper, pharmaceuticals, textiles, and printing. In these applications, it is being tested as a thickening agent to increase viscosity and to aid in suspension of solids.

## CSC SURFACE-ACTIVE AGENTS

**Alkaterge®-A, Alkaterge®-E, Alkaterge®-T**

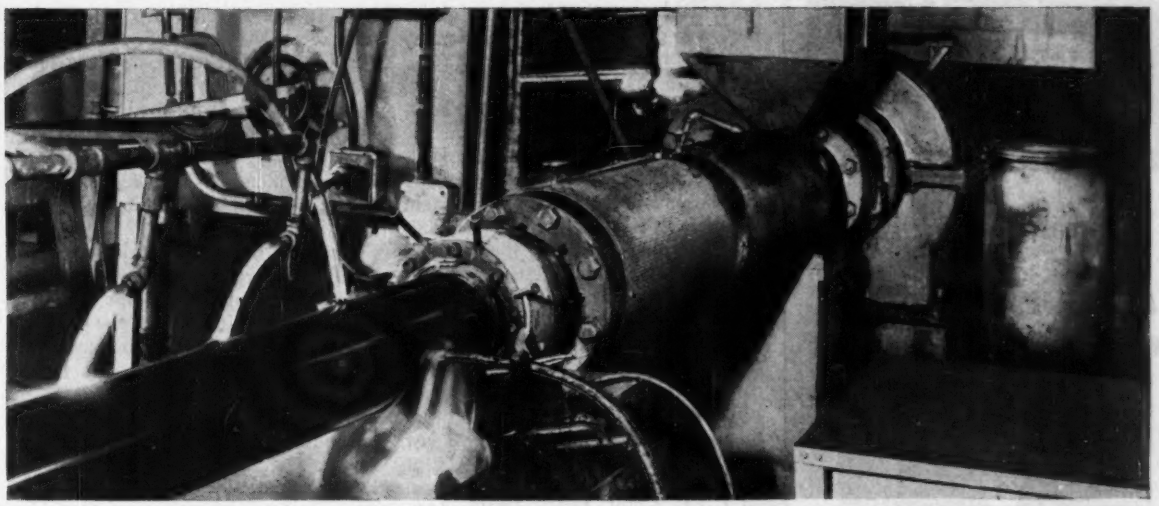
This group comprises three new substituted oxazolines. They are cationic, oil-soluble surface-active agents similar in structure and properties to the established surface-active agent, Alkaterge-C. The new products should prove valuable as auxiliary emulsification agents, spreading agents, pigment-grinding assistants, defoaming agents and dispersing agents.

**Glucaterges®**

These additions to the class of non-ionic surface-active agents are prepared from fatty acids and a polyhydroxy amine. They exhibit a unique combination of properties which suggests new possibilities for ideal performance characteristics under a wide range of conditions.

The outstanding foaming properties, excellent detergency, and good "feel" of Glucaterge-12 suggest applications in hair shampoos, shaving creams, and other cosmetic products. Also, this product is an emulsifying agent for hydrocarbon emulsions, and a dispersing agent for carnauba wax. Tests indicate its usefulness as a wool detergent.

Low-foaming detergent Glucaterge-28 possesses characteristics that recommend its use for mechanical dish-washing compounds and other applications where low-foaming properties combined with strong detergency are desirable. It is a useful component of soap products for hard-water areas, and can also be used to advantage in formulating specialty cleaners such as used on woodwork, walls, glass and tile.



NOW-TAMED EXTRUDER: Will turn out over $8 million's worth of plastic pipe this year.

# Well-Timed Hunch

**All it takes to parlay a simple research project into a multi-million dollar bonanza is one bright idea, good timing, and plenty of determination to play a hunch through. Carlon Products Corp., Cleveland, is mute example; it has blown up sales from a respectable $700,000 yearly in 1947 to a volume now estimated to top $8 million in 1953. Behind it all: plastic pipe and the early discovery of how to extrude it in tubing of over 2″ diameter.**

Back in 1939, Brigham and Phillip Britton, the brothers who control and are primarily responsible for Carlon's meteoric rise, were quietly operating a small stamping company,* and trying more or less ineffectively to drum up trade on a small trick pocket knife as a premium to cereal makers. One unimpressed customer—ear-deep in pocket knives—suggested they'd sell him quicker with an alternate premium—a plastic baseball.

That's where the ball started rolling. The plastic material from which they made the baseball's cover completely fascinated the Brittons—led them to immediately invest in a plastic extruder and seek out orders for vinyl tubing to be used in liquor dispensers. Production started early one Sunday morning in a small plant on Cleveland's Front St., convinced the partners in the first few minutes of operation (as the material rolled out of the machine at a 100 ft./minute clip) that they'd stumbled onto a gold mine.

Any lasting taste for Sunday operation was quickly curdled within the hour though, left both men hanging out a blown-out window gasping for air when their promising new extruder blew up and flooded the building with fumes.

But when the damage had been repaired, and all the problems causing the debacle were ironed out, the Brittons formally christened their plastic products "Carlon," a happy cross between Carter and Britton, and settled down to see what they could do to turn out an easy seller—pipe of over 2″ in diameter that would hold its shape indefinitely. Another early project: to find out how to turn out couplings and fittings—then unavailable commercially.

**It All Adds Up:** By this week Carlon has six plants humming throughout the country,* turns out miles of plastic tubing annually (ranging in diameter from one-eighth inch up to 23″), supplies both pipe (up to 6″, in both pliable and rigid materials) and fittings (in sizes to fit every pipe and tube coming off the lines). Its chunk of the U.S. market in the field is now an estimated 60%.

The great bulk of its sales: pipe for water systems in suburban communities, but expansion into the gas field looks like a sure bet soon. One such application in the Southwest: the piping of natural gas to irrigation system gas engines.

Another coming use: to carry acid-laden coal mine water—an example of how Carlon carries the fight right to its competitor's doorstep. First used by the M. A. Hanna Co.—major coal supplier to steel mills—on a free-test basis, the pipe soon proved out, and sold itself as a replacement for steel pipe itself.

PHILLIP BRITTON: . . . still awed.

**Some of the Secrets:** Polyethylene is the basic raw material going into most Carlon pipes and tubes; various butadiene copolymers are used in fittings. At present the company produces none of its basic ingredients, has no plans to launch out into such production or veer far from its chosen line.

Ace-in-the-hole has been the way Carlon engineers worked out a way to extrude perfectly round pipe, though it's never been patentable. But the process remained bottled up

* Known as the Carter Metal Stamping Co., purchased by C. S. Britton Sr., and taken over by his sons in 1939.

* At Cleveland, Corsicana, Tex., Ashville, N.C., Denver, Colo., Upper Sandusky, O. and Klamath Falls, Oregon.

SOLUBLE
MINERAL SALTS

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for several years, just long enough for Carlon to get a jump on it's now many competitors.

Outside of production snarls, biggest headache has been selling skeptical jobbers and distributors on the advantages of plastic. The war shortages helped, made steel pipe virtually non-existent and forced water system installers to take the plunge. Once initiated, say the Brittons, their selling job was easy—("Like getting the first olive out of a bottle").

Financing never posed serious problems. American Research, one of Carlon's earliest backers, ploughed in considerable funds, and led others to stake a claim in the company's future too. Latest financial doings (late last year) involved the private placing of $1 million in convertible debentures, all handled with little ado. Stock in Carlon is still unlisted; over-the-counter transactions are carried on in small lots, range in price from $36 to $40/share.

A dubious distinction: like many another company with an uninspiring past, Carlon now finds itself in the top excess profits tax bracket—looks forward to spreading out further when the tax is modified.

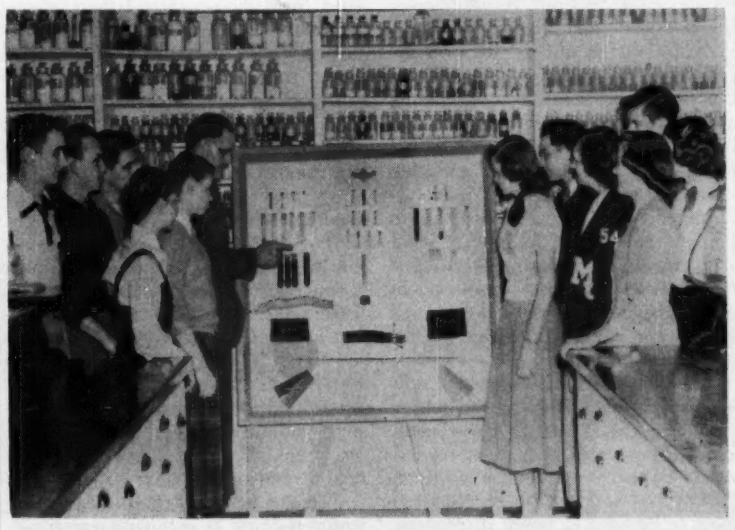
**Looking Ahead:** Plastic pipe, say Carlon management, has not been and won't be a major export item in the near future. Its only trip outside the U.S. so far has been to South America for water well casings, and the idea didn't pan out very well. The hitch: plastic pipe can't be used when rock is encountered in drilling.

"Nor," says Phillip Britton, "is there much chance that it'll replace steel pipe for major long distance pipeline installations."

Brother Brigham (Carlon's president) won't argue with him but thinks present sales of plastic pipe are still toddler sized. Next target: the gas distribution field, with the chemical and food processing industries due for a later sales onslaught.

To keep research going ahead, Carlon relies on a tightly knit staff of five research engineers, due to move soon into spanking new labs going up on a 12-acre plot outside Mantua, O. Pride of all Carlon today: wide open spaces at the new lab site, enabling researchers to field-test new products under a multitude of conditions, making free-testing à la Hanna no longer necessary.

Constantly on the search for methods to lower cost, provide greater heat resistant qualities and raise pressure levels, the Brittons—Phillip and Brigham—still carry the spark that launched Carlon at its first commercial contact—they're fascinated by plastics.

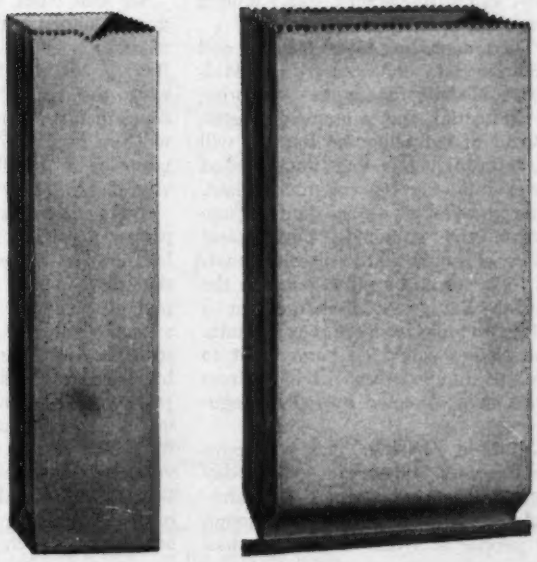


## Everybody Benefits

SEEING'S believing—and makes learning the first smatterings of chemistry that much more appealing. Exhibits (like Anaconda's, shown above) are used by Marion College's William Fessenden as chemical indoctrinators for first year students. Obtained from local companies they point up chemistry at work.

And the result: heightened enthusiasm plus a clearer understanding of industry by both educators and students alike.

# Do You Pack Mineral Wool Loose or in Batts?



Then you need a multiwall bag that can pack, stack, show, ship and empty your product—easily, economically and dependably. In fact you need a Bagpak bag—designed to solve all the problems of handling your light weight but bulky insulating materials—from factory to user.

Write for complete information about Bagpak bags for all light weight aggregates... Bagpak Division, International Paper Company, 220 East 42nd Street, New York 17, N. Y., Dept. R-13.

Ask about "Airex" Bagpak Multiwalls for batts—or other light weight, bulky materials, sized to suit your product. Sewn Open Mouth, and SOS (Automatic) Bag, of 4 cubic feet and larger capacity are currently being used by America's largest manufacturers.

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# Comeback for Sad Shad

**Driven out of New Jersey's once pristine Raritan River by the influx of water-tainting chemical works and other industrial plants into that valley, the shad—a sea-going game fish that makes annual spawning expeditions up East Coast rivers—is scheduled to stage a comeback in that formerly favorite haunt in about 1956.**

That doesn't mean that industry is about to begin an exodus from the Raritan Valley. On the contrary, chamber of commerce officials along the Raritan count on seeing many more factories in their bailiwicks. The idea is that the Raritan will be big enough for everyone—people, industries, and shad—when a $22.5 million trunk sewer is constructed.

Then, according to engineering and scientific data collected by the Middlesex County Sewerage Authority, all industrial and municipal wastes, instead of befouling the Raritan, will pass through one big underground sewer into one big treatment plant. After removal of sludge and organic matter, the remaining liquid—clear water with only a little dissolved matter in it—would be piped out into the Raritan Bay, and discharged at a point two miles from the river's mouth. The sludge would be barged out to sea and dumped some 12 miles from shore, or as directed by federal regulations.

**Multiple Blessing:** This will leave the Raritan's 800 million gallons/day average flow clean enough for industrial and municipal use, clean enough for people to swim in and for shad (*alosa sapidissima*) to gambol in. At the same time, the cities and factories will have what is regarded as the cheapest and most convenient method of waste disposal.

The 25-mile trunk sewer (including its South River branch line) will be built with funds raised through sale of revenue bonds. Money for payment of principal, interest, and operating costs will be raised by billing the cities and industries that use the sewer. Amount of these charges will depend on the quantity and chemical nature of discharged wastes; rates will vary from about $22 to $225 per million gallons/day.

On that basis, annual payments by municipalities will range from about $11,000 by little South Bound Brook Borough to $192,900 by New Brunswick, the largest city in the valley. Assessments against industrial plants will run from $5,700 for Benzol Products Co. up to $97,600 for the Sayreville plant of Hercules Powder Co.

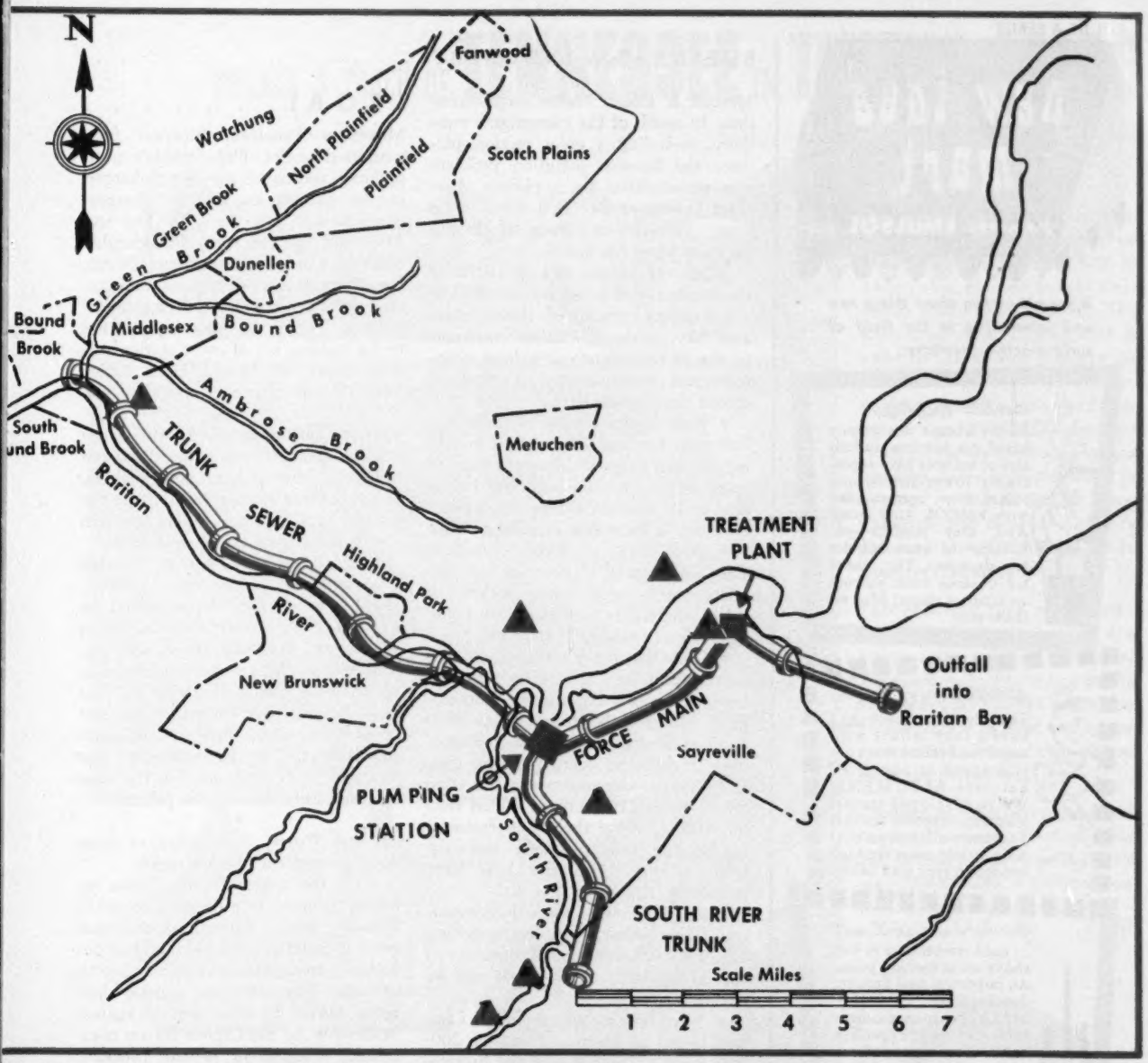
**Long Campaign:** Unanimous approval of the city's sewerage contract by the New Brunswick City Commission three weeks ago formally wrapped up victory for the sewerage authority. But it was a long, hard struggle. The commission—headed first by George F. Smith, president of Johnson & Johnson, and now by Chester A. Lydecker, president of Peerless Roll Leaf Co.—was organized three years ago by the Middlesex County Board of Freeholders, and since then has campaigned in many ways to win acceptance of the plan drafted by

**RARITAN'S CLEANSING:** Trunk sewer, to be

**BIGGEST USER:** Hercules Powder Co. plant (5), which will pay top bill.

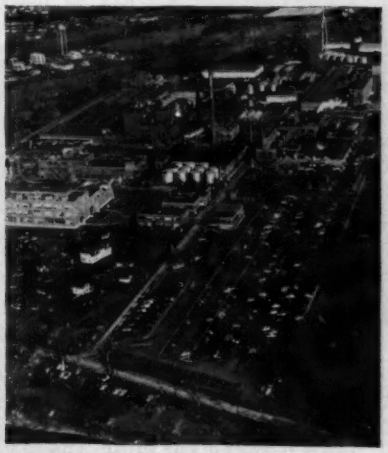
**SPEARHEAD:** Hon. Chairman Smith with Lead's plant mgr., L. L. Lewis.

**KEY SITE:** National Lead's Sayreville plant (4), location of project's one big treatment plant.




built in 1955-56, is expected to end pollution problems in New Jersey's "Queen of Rivers" for the next 50 years.

PROJECT DIRECTORS: Standing: Adams, Boland, Johnson; sitting: Tipton, Lydecker, Dailey.



LEAD-OFF PLANT: Carbide's Bakelite works (1), client farthest upstream.

SYSTEM SHIFT: Heyden (3) . . . from lagoon sedimentation to trunk sewer disposal.

6TH IN A SERIES

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from the EMULSOL lab

*A thought or two about things new and interesting in the field of surface-active chemistry . . .*

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Sudsy creme shampoos based on soapless sulfonates or sulfates have appreciably lower irritational values when compounded with EMCOL 4100 series. And, they produce—oh, billions—of extra bubbles per shampoo. The results are obvious even without an accurate count! May we show you?

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The lady of the house can't have a cake failure with angel food mixes that contain spray or pan dried Emulsol ALBUMENS. We've developed special albumens expressly for that purpose—albumens that whip up into cakes sky high and tender even for a bride.

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. . . until temperature is way above usual melting point. An important new Emulsol development, EMCOL—MAS is open to uses in many fields as a high titre opacifier, mold release agent and wax additive with unusual lipophylic properties, it's relatively non-irritating and compatible with most anion, non-ion, or cation-active componants. It may solve problems for you.

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## BUSINESS & INDUSTRY . . . . . .

Metcalf & Eddy, Boston engineering firm. In much of the campaign's publicity, including a color motion picture, the Raritan pollution problem was personalized by a piscine character known as the "Sad Shad," who wore an odor-excluding clothespin clamped over his snout.

While the people and industries of the Raritan Valley are on the road to a wholesale cleanup of their stream and bay, water pollution continues to rise in importance as a joint civic-industrial responsibility. Typical of recent developments:

• New England's Interstate Water Pollution Control Commission is trying to speed up the construction of some 700 municipal and 750 industrial waste treatment plants, total cost of which is estimated at $250 million.

• West Virginia's Water Commission has adopted a policy of not permitting any new sewer outlets or extensions unless provisions are made for adequate sewage treatment.

• The Ohio River Valley Sanitation Commission—an eight-state organization, whose new chairman is Director H. E. Moses of the Pennsylvania State Sanitary Engineering Board—is beginning to draw up regulations for control of waste disposal along the Ohio River. With 116 facilities added during 1952, 809 of the 2,246 factories discharging waste directly into the Ohio and its tributaries now have treatment plants.

• Texas' newly formed advisory council on water pollution is starting to formulate recommendations for a special legislature session that may be called within a year.

• New York's State Pollution Control Board is having printed a 200-page book on pollution in the Buffalo-Niagara area, and plans to hold public hearings by early October on plans for a long-range pollution control program there.

• Alabama's legislature is likely to pass a bill that would give the Water Improvement Commission authority to require that all sewage meet certain standards before it goes into the state's rivers.

• North Carolina's State Stream Sanitation Committee is holding public hearings this month on proposed standards for disposal of industrial and municipal wastes.

With such enforcement steps being taken on all sides, the Raritan trunk sewer may become a model for many river valley industrial communities that want to solve their intricate pollution puzzles in one stroke. This solution might be particularly desirable for clusters of chemical plants.

## LEGAL . . . . . .

**Maximum Penalties:** Steepest fines permitted under Philadelphia's anti-pollution ordinance are being charged in the current crack-down. Largest companies to pay the $100 fine and $10 costs so far were Philadelphia Electric Co. and Congoleum Nairn, Inc. Both companies blamed their recent pollution troubles on mechanical failures. The power firm is reported to be making out-of-court settlements with some 90 householders whose homes were blackened by the soot.

•

**Repeat Performance:** Shortly after a U.S. District Court judge dismissed a patent infringement suit filed by Rohm & Haas against Permutit on the ground of a technical defect, the suit—with the defect cured—was refiled.

R&H alleges that Permutit violated a patent on polystyrene anion-exchange resins. The suit was filed on Feb. 24, 1953, the day that the patent was issued. Permutit asked, and got, dismissal on the grounds that since its plants were closed by strike on that day, the only day for which the suit could have asked damages, it could be liable for no infringement. The new suit asks damages for the time between Feb. 24 and the present.

•

**Air and Water:** Two pollution notes were among the week's news:

• At the request of the Texas attorney general, Mathieson Chemical's Houston Ship Channel air-pollution control facilities will get another going-over from state and county health officials. The attorney general had been asked to take action against Mathieson by the Greens Bayou committee, a group of private property owners on the channel's north shore.

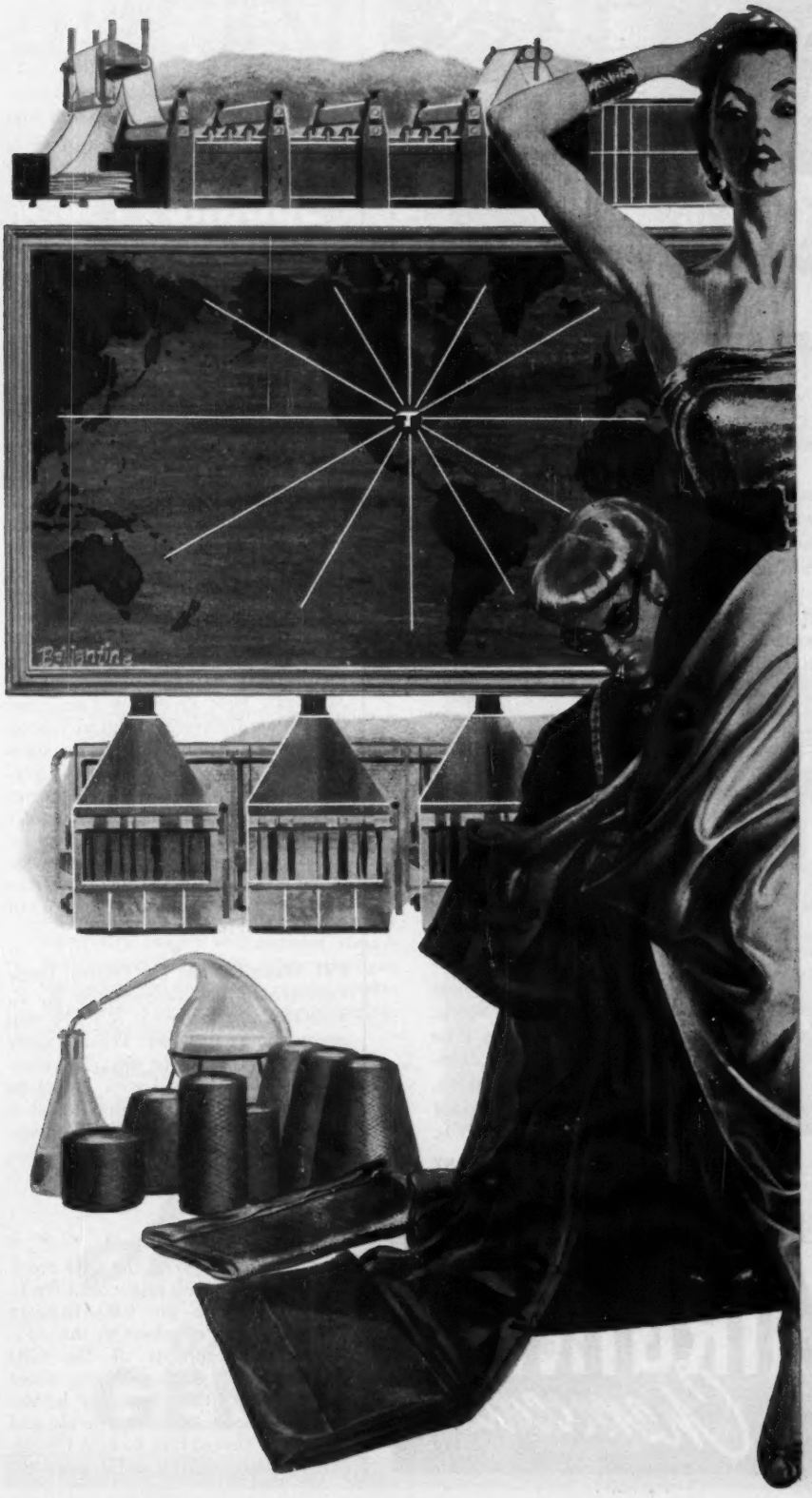
• In Connecticut, the state water commission and health department collated their records, then made this pronouncement: "The industrial waste treatment picture is not as good" as the municipal picture.

Only 25% of all industrial wastes in the state are being treated. Future picture, however, is better. Programs now under way would raise the total to 55%; with projects waiting to be put into execution, to 90%.

•

**Poison Puzzle:** The Hart County (Ky.) board of health has ordered the Louisville & Nashville Railroad and the now-defunct Shaw Oil & Chemical Co. to get rid of 45,000 gallons of arsenic trichloride. The material, in eight tanks, was stored along the railroad's right-of-way in an area leased by the Shaw concern. One of the tanks

# THERE'S A TOUCH OF TENNESSEE IN TEXTILE COLOR



*Textiles are emphasizing color today, and textile men rely on products from TENNESSEE to help them get the bright fast colors that are so popular. SBZ compound from TENNESSEE is used in the dyeing process for Dacron to give better dye exhaustion from the bath and faster colors . . . TENNESSEE supplies Acetic Acid for neutralizing and treating fabrics preparatory to dyeing . . . TENNESSEE's Benzaldehyde and Benzoic Acid are used as intermediates in the manufacture of dyes.*

*TENNESSEE's role in textiles actually goes right back to the cotton fields where Sulphate of Ammonia helps the cotton get its start, and TENNESSEE's Benzene Hexachloride in dust and spray formulations protects the cotton from the Boll Weevil.*

*The textile industry is a good customer of Tennessee Products, as is key industry everywhere. That's why TENNESSEE is known as an industry serving all industry.*

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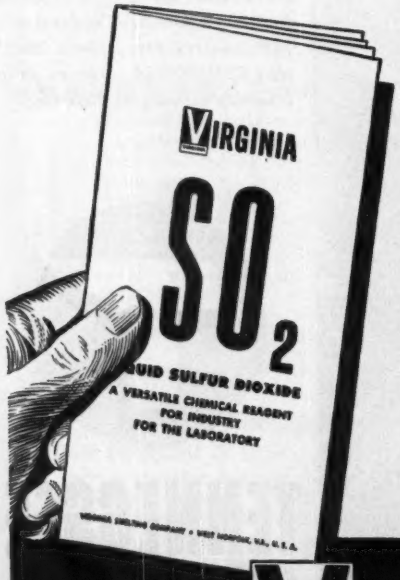
## Better grass silage—cheaper

Untreated grass silage is, of course, highly perishable; and though various methods of checking fermentation have been employed, each has had its own drawback—difficulty of application, ineffectiveness, high cost.

Use of liquid sulfur dioxide, begun experimentally in 1940 and established commercially in 1951 by Virginia Smelting Company, has proved a most satisfactory all-round solution to the problem. Under the trade name "Silagas," the company's $SO_2$ is now in use on hundreds of farms. It has been found to be 30% to 60% lower in cost than any method previously employed—and successful in preserving a high proportion of proteins, organic nutrients and carotene that were lost in earlier ensiling processes.




**Could $SO_2$ help you?**
For three decades "Virginia" has been continuously working to make its $SO_2$ more useful to industry. To date, the versatile chemical has found a place in the operations of more than 40 different industries, as a reducing, neutralizing and bleaching agent, preservative and antichlor, and for pH control. Perhaps "Virginia" chemists could point out ways in which $SO_2$ would be helpful to you. They'd be glad to look into the possibilities, and without obligation. As a first step, why not send for our folder on "Virginia" $SO_2$.

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VIRGINIA Chemicals


## B & I . . . . . .

has been leaking, and the material, coming in contact with ground water, has formed hydrochloric acid fumes and arsenic trioxide.

• Terming boric acid and its derivatives "deadly substances," a Pennsylvania state representative asks extension of the labeling law now covering poison labels for iodine and bichloride of mercury to cover boric acid and borated products.

•

**Fight over Flames:** A Buffalo (N.Y.) city council subcommittee, considering a proposed flammable liquids code, was told by chemical and petroleum industry representatives that the code is "discriminatory" because it doesn't cover similar gases and solids. Said the committee's attorney, such inclusion "would take years." The hearing, however, was postponed so that industry objections could be studied.

•

**D-Plus:** The Michigan State Agriculture Commission, following public hearings, has taken under advisement a proposal to allow dairies to fortify milk with not just vitamin D, but A,$B_1$,$B_2$, niacin, iron and iodine too. Such milk—which would cost about a penny more a quart—was urged by the Detroit city health officer, the Michigan Milk Producers Assn., and the Wayne University Medical School. Opposition—mainly on the grounds that milk is now the most nearly perfect food and that illness might result from excessive use of vitamins—came from the state health officers association, the Michigan State College home economics department and the University of Michigan School of Public Health.

•

**FTC Blasts Claims:** The Federal Trade Commission has ordered the R. R. Siebert Co., (Rochester, N.Y.) to stop representing that its Pernet silver polish won't harm the skin. The company is also charged with failing to show in labeling the material that it should be used only with adequate ventilation and should not be taken internally.

## LABOR . . . . . .

**Merger Rumors:** With the CIO Steelworkers flirting with cagey old John L. Lewis and with the CIO Brewery Workers losing members to the AFL Teamsters, occupants of the CIO household are getting uneasy about the possibility that they may be deserted by some of their friends and allies. The United Gas, Coke & Chemical Workers (CIO), who have re-

Use the free air to make your own

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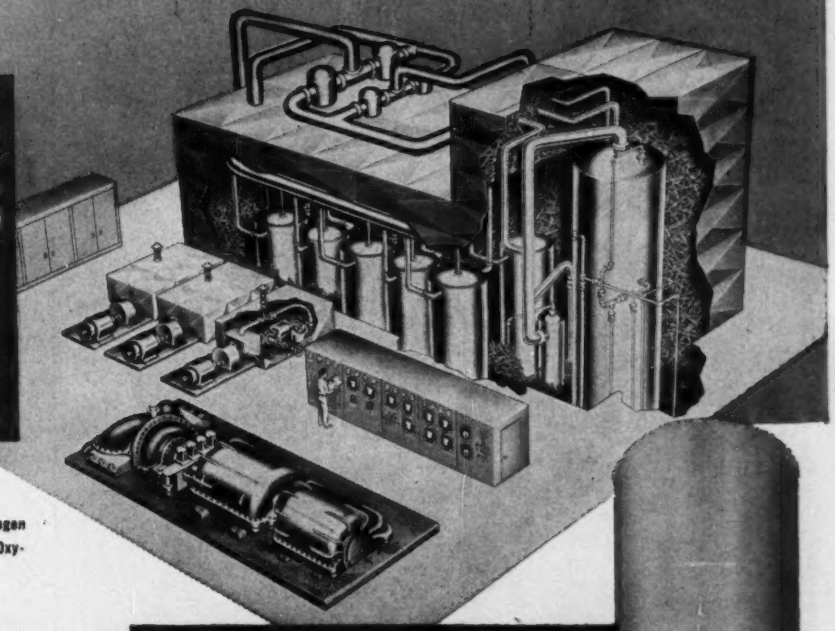
## 2-in-1 Tonnage GENERATORS

Standard models with oxygen capacities to 1000 TONS PER DAY Nitrogen capacities larger



A typical Air Products Tonnage Oxygen-Nitrogen Generator in operation since February, 1951. Oxygen capacity, 450 tons per day.

**AIR PRODUCTS TONNAGE GENERATORS** for oxygen, nitrogen *unlimited!* Standard models or specially designed. High or low pressure cycles according to requirements. Generators for production of oxygen and nitrogen, gas or liquid, in virtually *any* quantity, of *any* purity and at *any* pressure.

**AIR PRODUCTS HIGH-PURITY GENERATORS** slash oxygen costs *and* inert gas costs. Make *both* with *one* generator—produce super high-purity oxygen and nitrogen *simultaneously* or individually. Make *what* you want *when* you want it: compressed oxygen, high or low pressure nitrogen, liquid oxygen, liquid nitrogen.

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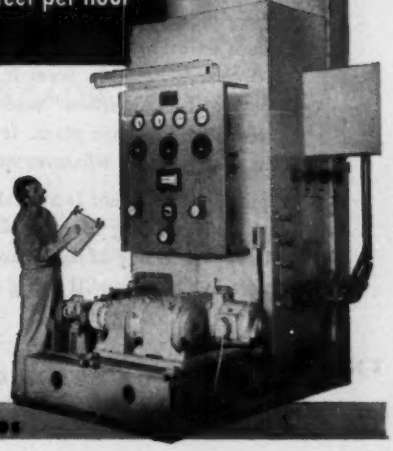
## 2-in-1 High-Purity GENERATORS

OXYGEN to 99.9% Purity
Capacities to 12,000 cubic feet per hour

NITROGEN to 99.99% Purity
Capacities to 36,000 cubic feet per hour



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## OXYGEN-NITROGEN GENERATORS

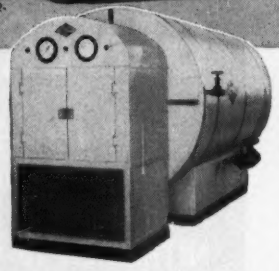
*Specialists in Gas Separation by Low-Temperature Processes*

# RED DIAMOND $CO_2$

one cylinder

or TEN TONS

Liquiflow $CO_2$ SYSTEM



"Liquiflow" receiver in customer's plant is charged with low pressure liquid carbon dioxide from "Liquiflow" tank truck.

Whether your $CO_2$ requirements are one cylinder, or more than 10 tons, "Liquid" can supply it wherever you are. One of its many distribution points is near you—ready to deliver, when you want it, as you want it. In 50 lb. cylinders or by "Liquiflow" tank truck to specially designed "receivers" in your plant. It is also available in solid form as dry ice, in whatever quantity you require.

A Liquid field engineer is available to assist you in your plans or in solving your problems in any $CO_2$ application. A request to any of our branch offices or to our headquarters in Chicago will bring a prompt reply.

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WORLD'S LARGEST PRODUCER OF $CO_2$




ceived donations from other CIO unions for organizational work and who are even now being bolstered by the loan of super-organizers from the CIO staff, have been mentioned as interested in a possible merger with the Oil Workers International Union (CIO). In the past, there was some friction between those two groups, and a merger resolution was voted down at Gas-Coke's 1950 convention; but things may look different to Gas-Coke now. Elwood Swisher, president of Gas-Coke, says that a merger of the two unions "has certain very desirable advantages . . . in strength at the bargaining table, in political action, and in education and research."

•

**Exchange of Volleys:** Continued efforts by the youthful federation, Engineers & Scientists of America (*CW, Mar. 14*), to organize engineers and scientists into collective bargaining units have drawn a fusillade of criticism from management. Facing up to such criticism is John E. Taft, ESA's vice-president, who reports that his organization has been gaining strength in the aircraft industry (Boeing in Kansas, Consolidated Vultee in California) but hasn't yet broken into the chemical field. Among recent exchanges:

• W. R. Woolrich, past president, American Society for Engineering Education: "The answer . . . to the man who plans to grow is not unionism and its accompanying leveling off to mediocrity." Taft: "ESA member units have indicated a fervent desire to insure that meritorious individual initiative is rewarded."

• K. B. McEachron, consultant, General Electric Co.: "With a national union (for engineers and scientists), the opportunity and temptation for unethical practice will become even greater (than that in local associations), particularly where competing company employees are involved." Taft: "There are obviously temptations in all professional fields, and it is the duty of the professionals themselves to see that ethics are maintained. Members of ESA units have demonstrated that they are responsible members of the engineering and scientific profession who can conduct their organization's affairs in an ethical manner. I don't think trade secrets will leak out in the ESA, [any more than] in the various technical societies."

•

**Oil Boost Spreads:** The 4% wage increase that has become the 1953 pattern for the petroleum industry is spilling over into synthetic rubber and

100%
Polymerized Petroleum
Resin

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→ *a new petroleum* BASIC RAW MATERIAL

→ *available in* LARGE *quantities*

*by the trainload if you want it*

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**PICCOPALE—the new, low-cost, large production, high quality petroleum resin opens new avenues to product-improvement and cost-reduction in a wide variety of application. Send for complete information and samples so that you may investigate for yourself its possible uses in your processing.**

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- TRANSPARENT
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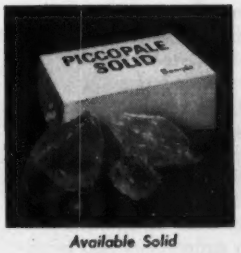
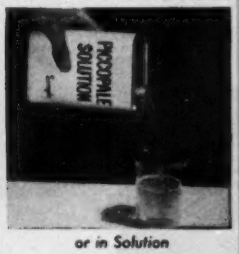


*Available Solid*

*Flaked*



*or in Solution*

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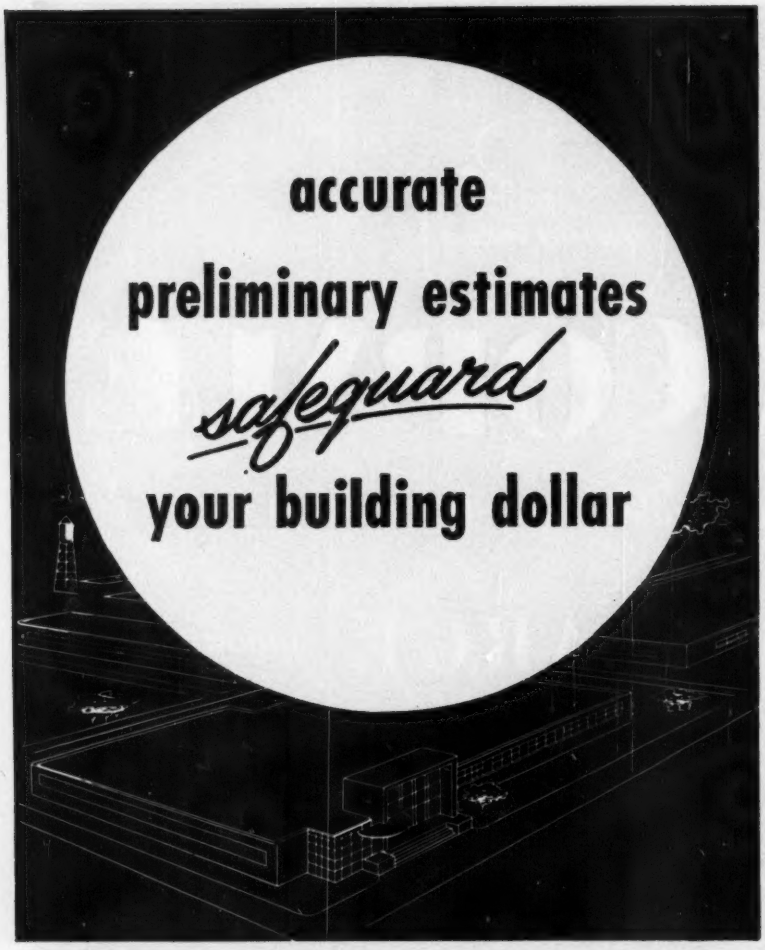
*Plants at* Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.

*Distributed by* Pennsylvania Salt Chemical Co., Pittsburgh 22, Pa. and Harwick Standard Chemical Co., Akron 8, Ohio




Ferguson's practice of combining the work of designer, builder and cost expert, assures accurate and dependable preliminary estimates. From the beginning, those responsible for the design collaborate with the cost and engineering specialists to produce a structure of functional soundness — and at the same time hold expenditures within the original appropriations.

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other chemical plants along the Gulf Coast.

• About 450 members of Oil Workers International Union (CIO) now will receive the 4% pay hike that their company, Neches Butane, previously had granted to its non-union employees at Port Neches, Texas. Jefferson Chemical was next to fall in line, and B. F. Goodrich Chemical has offered to follow suit.

• The 4% increment has been offered, along with other benefits, to employees at U. S. Rubber's plant in Port Neches.

• A 7¢/hour increase—probably almost 4%—is the basis for a new one-year contract between Great Lakes Carbon and two OWIU locals at Port Arthur, Texas.

• Signing of an agreement calling for a 10¢ increase for more than 500 members of the AFL Sheet Metal Workers Union, employed by contracting firms, permitted resumption of operations at Goodyear's synthetic rubber plant near La Porte, Texas. This in turn kept the nearby Sinclair plant from having to shut down its production of butadiene.

• Mathieson Chemical and the OWIU have agreed on terms for a new contract for the Beaumont plant, but provisions have not been announced.

•

**Strikes Are Sparse:** There are few strikes in the chemical news this week; only one involves chemical workers.

• Federal mediators are moving into the strike situation at Bridgeville, Pa., where American Cyanamid's resins plant has been closed nearly four months by a strike of about 600 members of District 50, UMW.

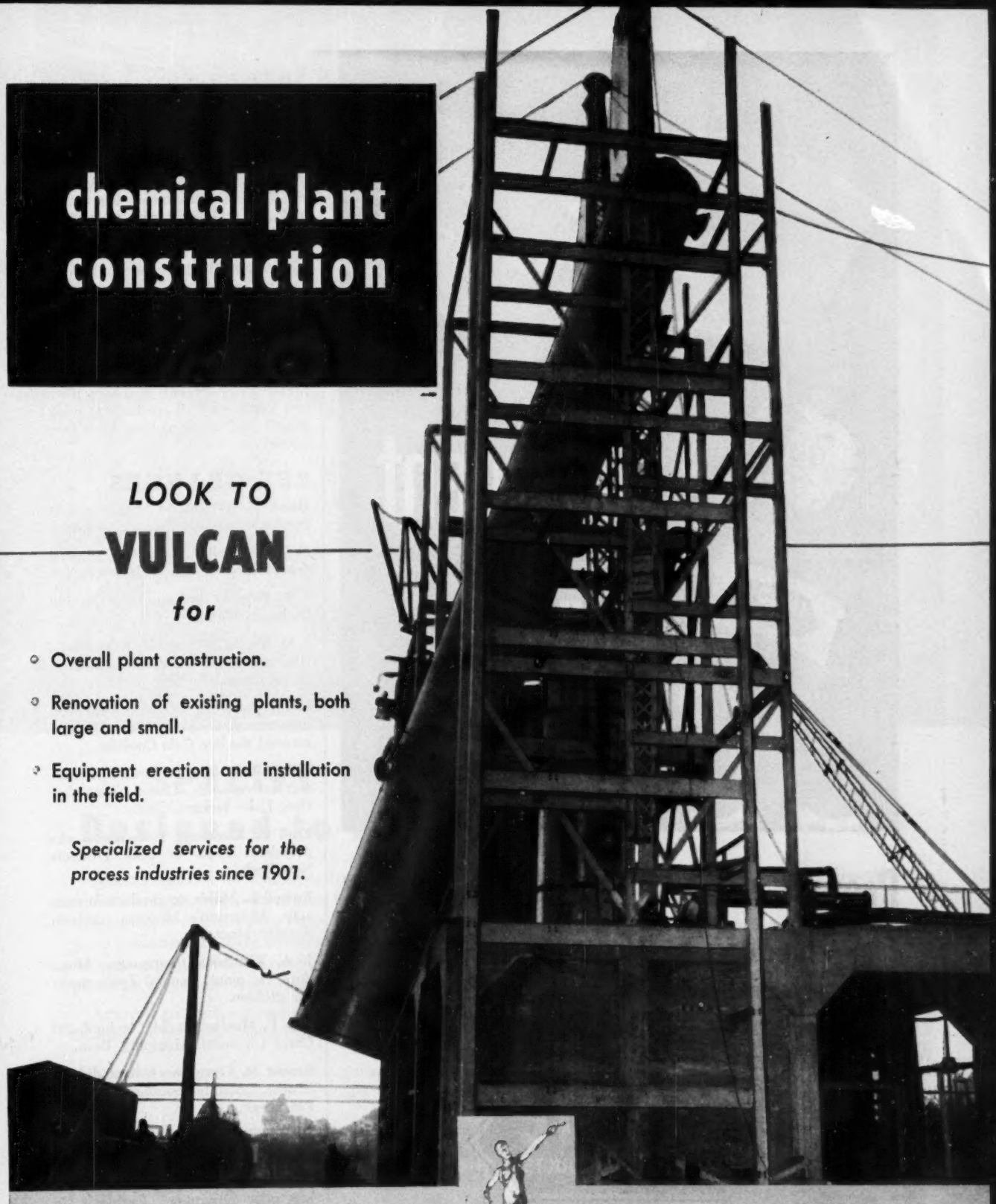
• Two chemical expansion projects —one for Du Pont and one for Allied Chemical—have been halted by a strike of AFL millwrights and carpenters at Orange, Texas.

• Delivery of equipment for chemical and other industrial plants has been interrupted by a strike at the Henry Vogt Machine Co., Louisville, Ky. The approximately 800 strikers are members of the CIO Steelworkers.

• Goodyear handed out 150 one-week suspensions to employees taking part in what a union official called an unauthorized strike at the Akron plant. It was reported that union members who normally drive small, motorized, intra-plant trucks were up in arms because non-union supervisors had been assigned to teach new employees how to drive the trucks.

• After a one-week strike, a group of truck drivers went back to their job of hauling gasoline, alcohol, solvents and other petroleum products for Gas-

# chemical plant construction



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## B & I . . . . . .

oline Transport Co., near Louisville, Ky. They first demanded an NLRB election, but ended their strike when it appeared that they wouldn't be eligible for union representation. As owners of their own trucks, the drivers probably will be classed as contractors rather than as employees.

• In the 11-month-old strike of AFL Sulfite Workers and Paper Makers at Elizabeth, La., a railroad track and an auto were dynamited as Gov. Robert Kennon presented his compromise settlement plan. Kennon suggests that the companies rehire 15% of the strikers within 30 days, and fill all future vacancies with members of the two locals until all are back at work. Wages and other matters have been agreed on.

## KEY CHANGES . . .

**Harry D. Wilson,** to vice president, Borden's chemical division, New York.

**C. W. Mitchell,** to executive vice president, Nyotex Chemical, Houston, Tex.

**S. L. Bass,** to director, Dow Corning, Midland, Mich.

**I. H. Munro,** to assistant to executive vice president, Solvay Process Div., Allied Chemical, New York.

**Paul L. Salzburg,** to director, chemical department, Du Pont, Wilmington, to succeed the late Cole Coolidge.

**Robert W. Colby,** to director of agricultural research, Dow's Texas division, Lake Jackson, Tex.

**Emil G. Klarmann,** to technical vice president, Lehn & Fink Products, New York.

**Russell L. Miller,** to production manager, Monsanto's Merrimac division, Everett, Mass.

**J. A. Kleinhans,** to manager, Mogadore, O., plant, General Tire's chemical division.

**Max F. Mueller,** to chief technologist, Grace Chemical, Memphis, Tenn.

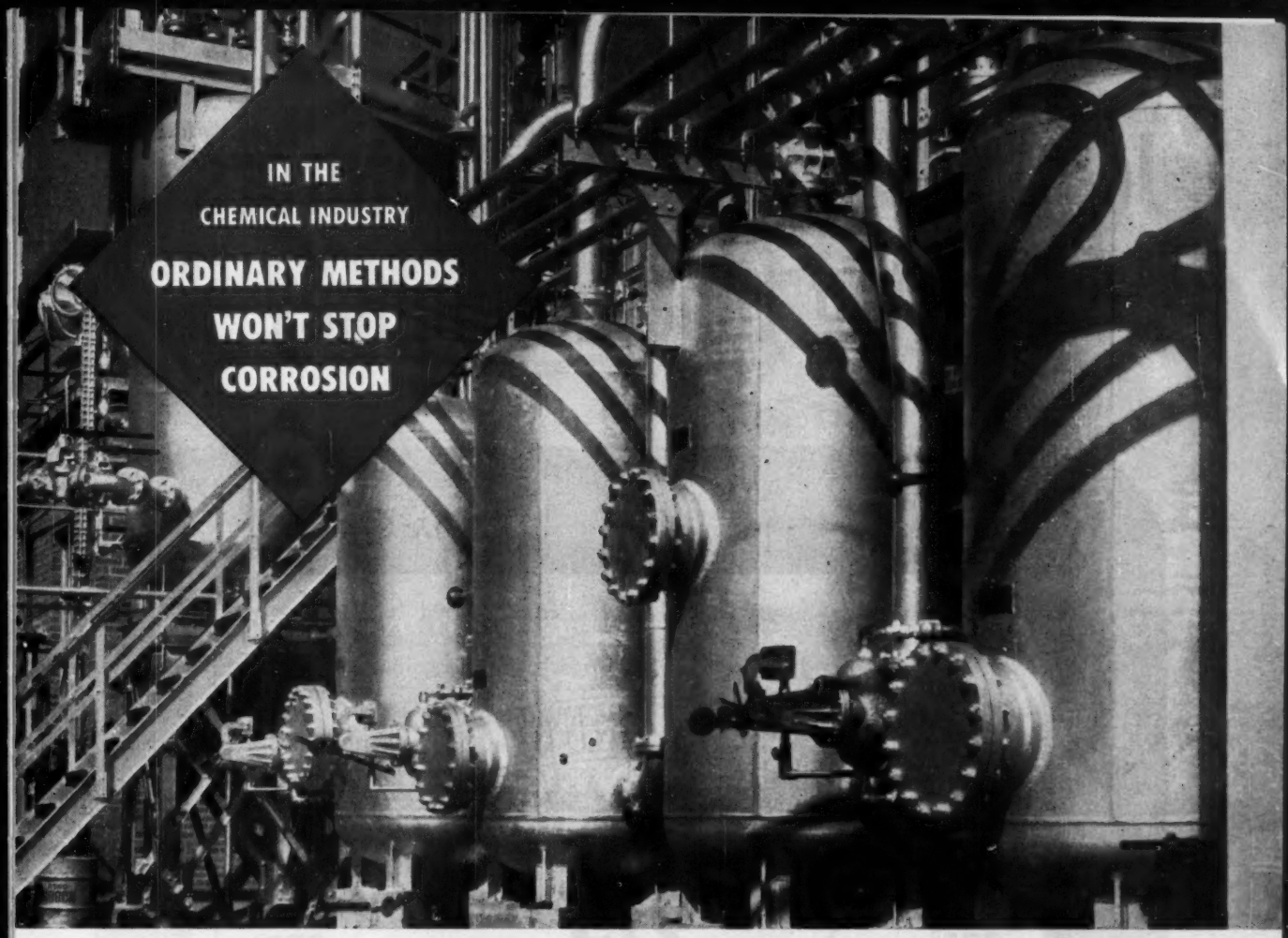
**Brooks M. Dyer,** to assistant director of sales, Columbia-Southern Chemical, Pittsburgh.

**Walter F. Hosek,** to manager, chemicals division, Sullivan Varnish Co.

**C. E. Ford,** to manager, chemical carbon sales department, Carbide's National Carbon Co. division.

## KUDOS . . . . . .

**N. H. Furman,** to receive The Electrochemical Society's Palladium Medal, 1953.

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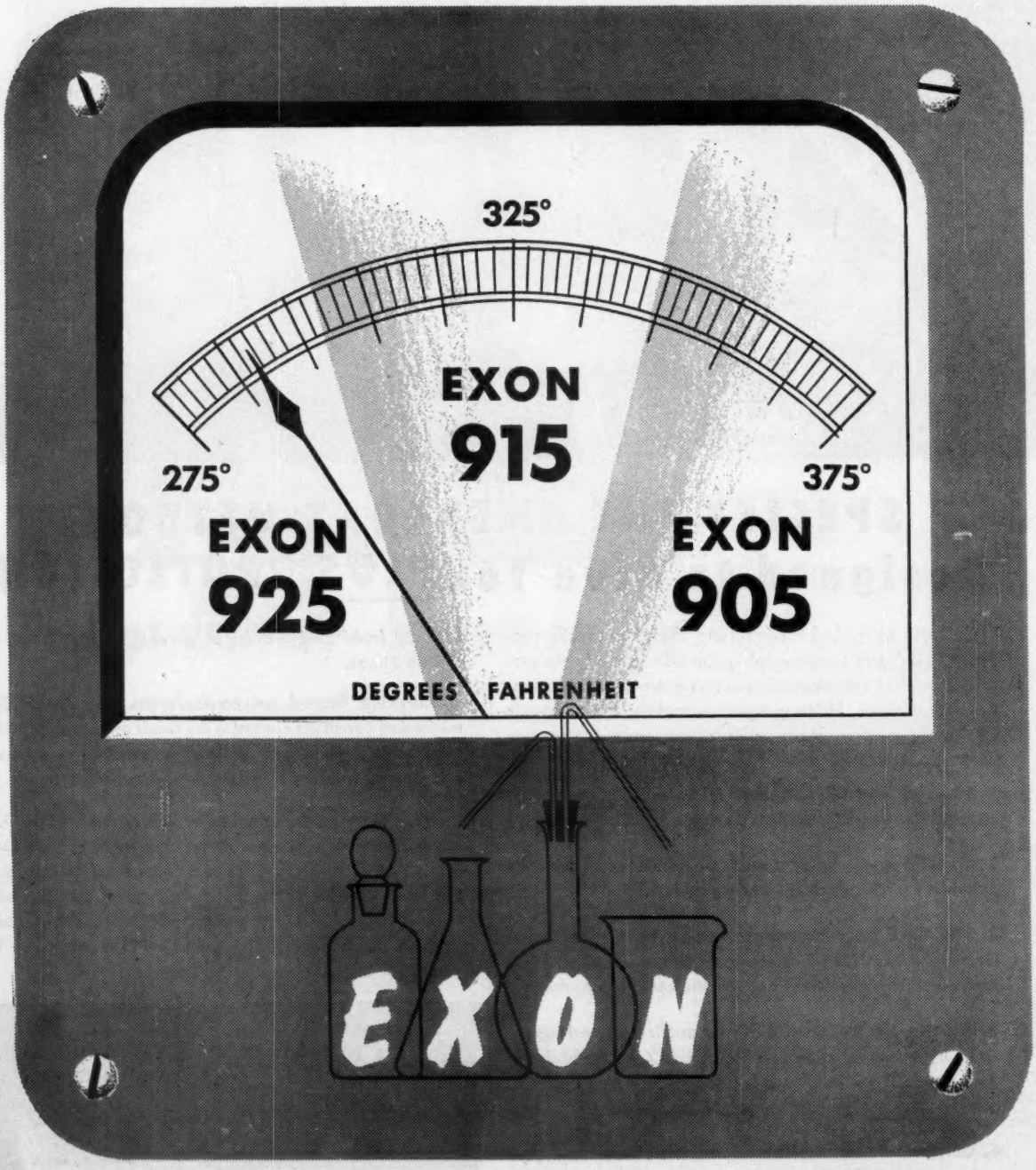

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| ***EXON 925*** An excellent P. V. C. resin for low processing temperatures. (starting at 275° F.) | White Powder | 1.40 | 2.05 | 0.45 |

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Butyl or other Synthetic
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CLEAN GREASE FASTER!... Richer Suds make tough cleaning jobs EASY! Try the NEW Old DUTCH Today!

OLD DUTCH AD: Chemical additives are taking up the chase.

# Fast Pace Makes a Market

Introduction of a "new" Old Dutch Cleanser by Cudahy Packing Co. kicks new life into the household scouring powder battle.

More than a promotion battle, the new formulation could open a tidy market for chemical additives in the cleansers.

**With a promotion campaign** that began in the Midwest a few weeks ago, Cudahy Packing Co. (Omaha, Neb.), makers of Old Dutch Cleanser, jarred the trade with news about its "new" Old Dutch. Deodorizes, the ads said, kills germs, actually glows as it "chases dirt."

Although ad copy generally glistens richer than it assays, other scouring powder makers picked up their ears, for Cudahy unquestionably is trying some new additives in the cleansers.

As required by the laws of some states—California's economics poison law, for example—the new ingredients are listed on the Old Dutch label: In addition to the 93.65% inert cleansing components (which would include the abrasive and perfume), it is listed as containing dodecyl benzene sodium sulfonate (2.0%) and nonyl benzene sodium sulfonate (0.85%), sodium perborate (0.5%) and trisodium phosphate (3.0%). Likely included with the inert ingredients is the dye, which turns Old Dutch yellow in water, and which is designed to give the housewife an indication of when the cleanser is thoroughly rinsed off.

Though competitors snort that they can't quite assign the deodorizing and sanitizing (a somewhat general term) chores to the listed ingredients, Cud-

ahy has apparently readied independent laboratory evidence to back its claims.

**New Twist:** Cudahy's additives are among the newest publicized changes in formulation since the synthetic detergents crowded the soaps out of most scouring powders. The main ingredient has always been the abrasive, which is generally a pumice, but can be a silica material. There's no question but that some commonly used cleansers employ grits that can damage porcelain and plastic tile.

But Old Dutch may be far from the end of formulation switches. Another angle has been tried by Alfred C. Houser (Chicago). For the past seven years he's been experimenting with addition of synthetic lapis lazuli (ultramarine blue) to the dry abrasive; about half of one percent by weight is mixed in. Hard, and ground extremely fine, it is said both to polish and to brighten the surface to which it's applied.

In water, Houser's mixture, off-white when dry, becomes blue—hence the name Skydust that Houser suggests. His plan is to license the manufacture of his product, is reportedly dealing with several firms.

Houser has a couple of other twists, too. He visualizes the cleanser as a premium item, in a special can—talcum powder-like container—at a price of about 49¢ per 12-oz. package.

**Profit Hunt:** At 49¢ cleansers would most certainly be profitable items. Lack of profit at current price levels (two for 25¢ is typical) has been a point troubling makers of the scouring powders for several years. The fact that the powders are hard to ship and sell profitably at long distance from the manufacturing point accounts for good localized sales position of small brands.

And it has been fairly common talk in the trade that many firms producing the powders are little more than breaking even on them—some feel that they are hardly worth the trouble.

Nevertheless, some impressive sales records have been set up. Colgate-Palmolive-Peet, the only one of soap's big three to have a cleanser, has pushed its Ajax into the top sales position in many major cities. Consolidated Consumer Analysis (a compilation of newspaper consumer surveys of some 15-17 cities) indicates that last year 16 of the 17 city surveys put Ajax in the top spot; the other went to Babo (B. T. Babbitt and Co., New York). In '51's survey, Ajax held 8 top spots; Old Dutch, 5; and Babo, 1.

And though it is hush-hush on policy, it seems that Cudahy is aiming to climb back into the top sales position it had for many years (it was introduced in 1905) by means of specialized formulation. The firm is amazed by the attention it has received since the new Old Dutch blossomed out—several publications have queried the now somewhat touchy officials—but it indicates that the trade is closely interested in the potentialities of chemical additives.

**Talk It Up:** Silent about its sales plans for the future, Cudahy hasn't been quiet in its ads. According to the sales and advertising magazine *Tide*, other manufacturers of household cleansers are concerned about Cudahy's promotion scheme. Apparently, packing companies' advertising can't be challenged by the Federal Trade Commission, since they are under the U.S. Dept. of Agriculture, and competitors of packers seem to feel that Cudahy can use a campaign they wouldn't be permitted to try.

Whether rival firms will alter their formulations to match is hard to say. But if Old Dutch's campaign catches hold, there is every indication that others will do whatever is necessary to match it, and that could make a good market for chemicals. Though precise consumption figures aren't available, well over 95% of city householders use the powders, which indicates a fair potential.

But in a more immediate sense, until the impact on the additive field of Old Dutch can be judged, it will be a battle to see if Cudahy formulation novelties can match Colgate's big ad budget.

## It Takes a Heap

**Just-completed survey** by the U.S. Dept. of Agriculture shows that American farmers, gardeners and lawn keepers used a record-setting 22,432,418 tons of fertilizer in 1951-52.

The heavy tonnage—1,441,024 tons more than used the previous year—wasn't spread evenly, geographically: 13 states in the South Atlantic, East South Central, and West South Central took nearly half the total (49.3%). Though that's a 3.6% increase, it can't match the jump in consumption of the North Central States, 15% (up to 6,301,511 tons); or that of Idaho, Maine, Nebraska, and S. Dakota, where there were 25% increases.

About 60% of all fertilizers, this 13th annual USDA survey reveals, were N-P-K mixtures.

More detailed infirmation on fertilizer consumption, distribution, and formulation is available in the USDA's "Commercial Fertilizer Consumption in the United States for 1951-52," which may be obtained from the USDA Plant Industry Station, Beltsville, Md.

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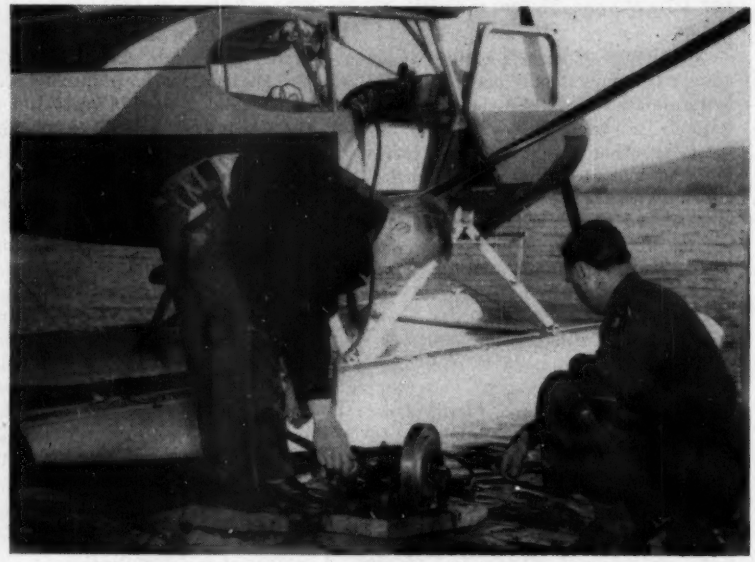

**PLANTING PLANE:** To fly more fish and less water, barbiturates.

# Goofballs in the Fisheries

**Sodium Amytal and Seconal Sodium may be used more widely on fish than humans if plans of the California Dept. of Fish and Game are carried out.**

Over three million trout planted in California waters this year will be under the influence of these sedative drugs when they are released from tank trucks or airplanes.

That's about 20% of the total fish put into lakes and streams in the state. And fish and game officials said it is probable that the drugs, Sodium Amytal for the fingerlings and Seconal Sodium (secobarbital sodium) for catchable trout, will be used in all fish planting beginning next year.

One-half grain per gallon of water is used in "hypnotizing" the fingerlings and one-fourth grain of secobarbital in a gallon is enough to quiet the catchable size.*

**Pound Wise:** By the use of these drugs, only one-third to one-quarter as much water is needed for transporting fish as would ordinarily be used. That's a major saving in weight and bulk, important where the planting must be done by air. Officials figure the weight saving will pay off almost equally in dollar savings.

Where planting crews formerly carried 200 fingerlings to the gallon of water, the new system allows the transport of an average of 500 or more. Six to ten catchable-size fish, once canned at eight to the gallon, may now be carried safely at twenty to the gallon or more.

It's explained this way: the barbiturate calms the fish down to a point where they use less oxygen and thus need less water in transit. After many months of observation in captivity, once-drugged fish show no visible effect of their treatment, and fish drugged and planted present no danger to the fishermen who catch and later eat them, a department spokesman said.

**California Special:** Although a number of states have used anesthetic drugs successfully in limited live fish-tagging operations, California claims to be the first state to use them for fish planting.

The state's senior warden pilot, A. L. Reese of Sacramento, Calif., is credited with the major role in the adoption of the drugging program. A veteran of 15 years' service with the fish and game agency, Reese deplored his summer task of carrying tons of useless water over the Sierra Nevada on the annual aerial fish planting missions. For the 2½ million trout dropped by air in '52, Reese and his pilots toted 25,000 gallons of water.

With the aid of a pharmacist friend, Reese experimented with the use of various types of drugs on the fish. After a dozen tries during months of experiments, they narrowed the field to Sodium Amytal and Seconal.

Quicker-acting secobarbital was found to be more desirable on the larger fish. Doses between one-quar-

* Unlike aspirin, five grains of which per aquarium is enough to foment fish to a frenzy, as many a youngster knows. This is a vexation to theater and department store managers, who must keep the moppets from dosing goldfish bowls.

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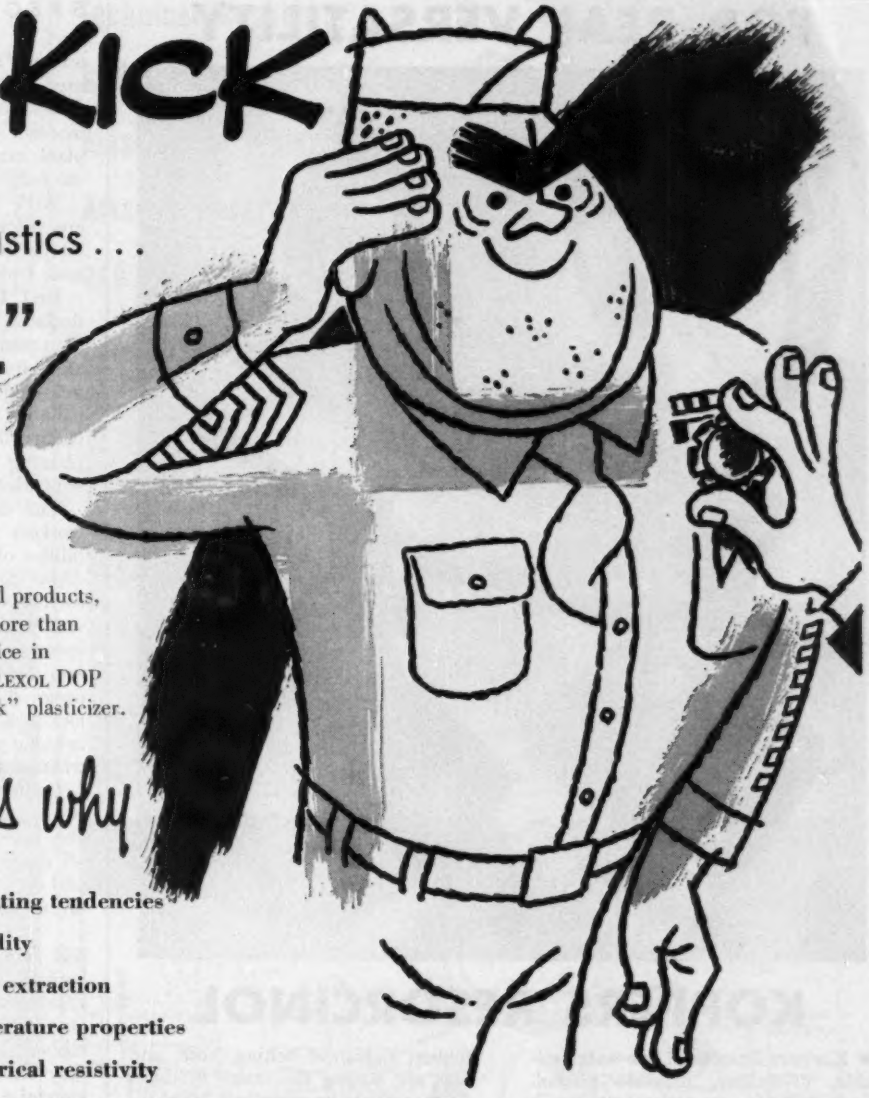

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## Koppers Chemicals

**KOPPERS COMPANY, INC.**
**Chemical Division,**
**Dept. CW-813, Pittsburgh 19, Pa.**




ter and 17 grains to the gallon were used in the experiments. The largest dosage proved fatal to three out of five fish used in the experiment. Fish plant crews have since worked out the half- and quarter-grain rations.

With these trifling amounts, fish are immediately revived when they hit the fresh water after their ride by tank truck or airplane.

**Rest Cure:** In most cases, Reese declares, drugged fish are in better than usual condition when they arrive at their new home, even after a two-mile-high supra-Sierra flight. The calming effect of the barbiturates means less thrashing about in the planting cans, gives the piscatorial equivalent of a rest cure.

The department's marine fisheries workers are looking over the possibilities of the drug on salt-water fish. Although no experiments have been carried out, hopes are high that it may be useful in collecting live marine specimens for scientific use and aquarium display, tagging and transporting ocean fish for planting in the land-locked Salton Sea. Consideration also is being given to its use in fish disease treatment or spawn-taking operations.

California distributes 18 million fish per year; nationwide, the total is probably several times that. And if they're all drugged before planting, it could add up to a tidy market for the knock-out drops.

●

**Kill 'em Young:** Now available in limited quantities is a new weed killer made by Naugatuck Chemical Div., U.S. Rubber Co. Alanap, as it's tabbed, is designed to kill weeds as they emerge from the ground; commercial growers, now getting the bulk of the supply, use it on vine crops—melons, cucumbers, etc.

Chemically N-1-naphthylphthalamic acid, it can be applied at a rate of 4-8 lbs./acre in water spray, although less can be used if the chemical is put only on the rows. Preliminary tests, Naugatuck says, have shown Alanap to be relatively low in toxicity to warm-blooded animals.

●

**Scenting Sales:** Dow Chemical Co. is now offering expanded service in the field of industrial odor correctives through its Jersey City, N.J., and Midland, Mich. offices.

●

**Light the Way:** Olin Industries Inc. (New Haven, Conn.) is now making a flashlight cell with a chemical sealant to prevent battery leakage. The chemical, which apparently halts leakage by a chemical rather than by mechanical means, is called Solinite, but

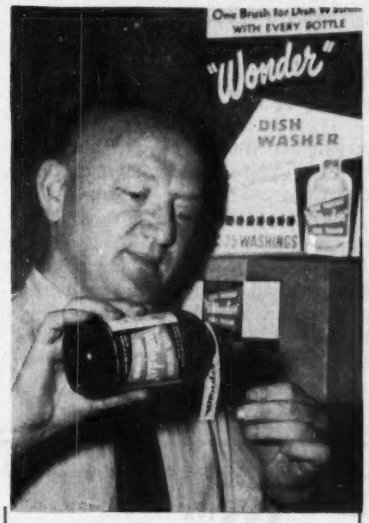
is not further described. Olin will sell the new flashlight cell under its own name; heretofore it has produced Winchester and Bond cells.

•

**Guide:** The Chemical Specialties Manufacturers Assn.'s new "Manual for Vendors and Fillers of Aerosols and Pressurized Packages" is now available. The loose leaf guide, prepared by the CSMA's Aerosol Div., may be obtained from the Assn. at 110 E. 42nd St., New York 17, N.Y.

•

**Acquiring Polish:** Leo H. Ward has purchased the Liquid Veneer Corp. (Buffalo), maker of furniture polishes and auto radiator specialties. Price tag on the firm, which has branches in Canada and England, has been estimated at $250,000.




## Capful per Car

CARS laundered for less than a cent each—that's the pitch of a new detergent now selling in Canada.

Tagged Robert's Wonder, the liquid detergent comes in 12-oz. (about 59¢) and 6-oz. bottles (39¢), and a capful will scrub an auto, according to the manufacturer, Robert Chemical Co., Ltd. (Montreal). The detergent is simply poured in a bucket of water, sponged on the car, and rinsed off.

Martin Robert, a chemist formerly with I. G. Farben, says his detergent also helps out in the kitchen; a capful in the sink will do the dishes. Already being sold in leading Canadian supermarkets, Robert is now zeroing in on service station outlets.

Technical Naphthas
& Petroleum Solvents
Amsco-Solv Aromatic Solvents
Amsco Hexane
and Heptane

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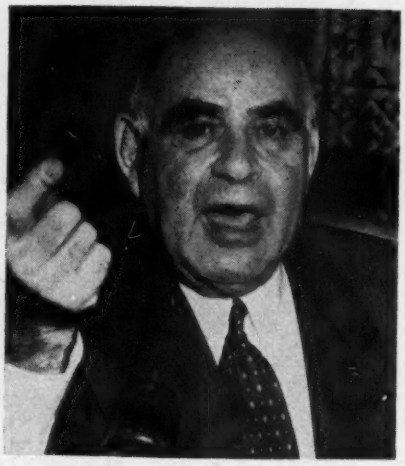
# PRODUCTION . . . . .



UNITED STATES' LEHMAN: More important than "who" is the question of preference.

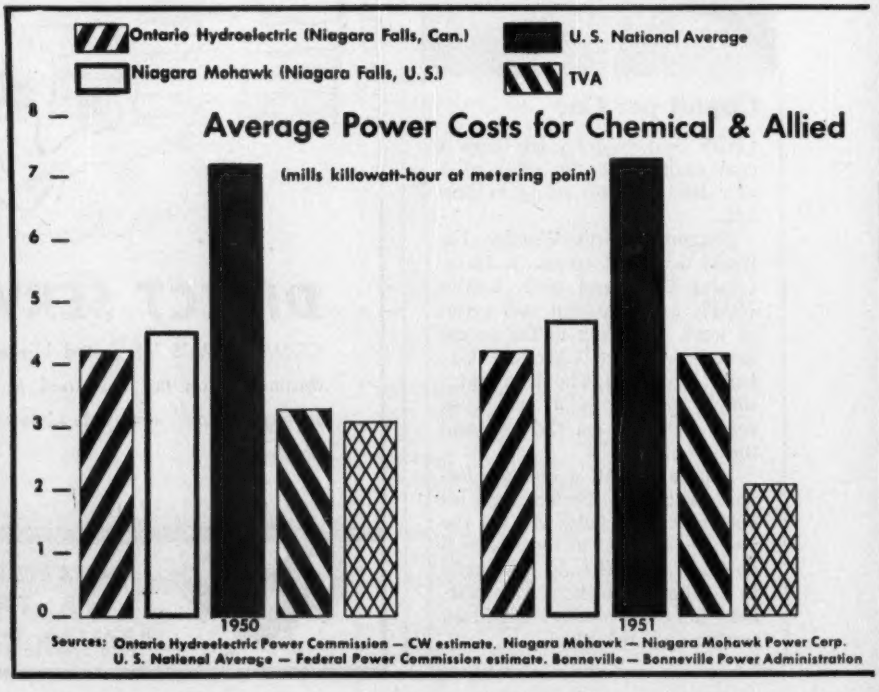
NEW YORK'S BURTON: It would be interfering with State's sovereignty . . .

## Who'll Boost Falls' Power?

**Today, agitation is roiling** Niagara Falls. It's a three-sided controversy about who is to carry out future development of Niagara power. Here (*right*) is a brief geometry of the triangle—a delineation of the three sides.

But pros and cons aside, whether chemical production men in the Niagara Falls area will now get the answer to their future power needs,—or whether they'll have to mothball expansion plans for another year rests with Congress and the President.

Ever since the signing of the boundary waters treaty with Canada in 1950, large power-consuming electrochemical and metallurgical industries in the Falls area have been playing the role of interested sideliners while the contestants—United States, New



MOHAWK'S MACHOLD: Ready, willing and able to undertake future development of Niagara power.

York State and a private utilities group*—have been vying for the right to develop additional Niagara power. Ordinarily a matter to be decided by the Federal Power Commission, the question of "who" is, instead, now facing Congress because a rider tacked onto the treaty gives Congress licensing responsibility.

Flexing its muscles after a three-year layoff, a Niagara bill (Rep. Dondero's measure favoring private development) finally seems to be on its way, passed (14 to 7) a joint Congressional committee in June, breezed through the House of Representatives (262 to 120) barely two weeks later. In spite of vigorous support by Senators Capehart (R., Ind.) and Martin (R., Pa.), it is figured to encounter strong opposition from the public power bloc led by Senator Lehman (D., N.Y.). Even the bill's most optimistic proponents won't bet on its race against Congressional adjournment.

Once the Senate—and the President—flashes the green light, the Federal Power Commission will pass upon the approved applicant's qualifications and plans. Canada, meanwhile, through its Ontario Hydroelectric Commission, long ago began its construction program to utilize the greater diversion of water, expects to send its first additional kilowatts through transmission lines next year. Private development in the U.S., say the utilities, would require five years for total completion.

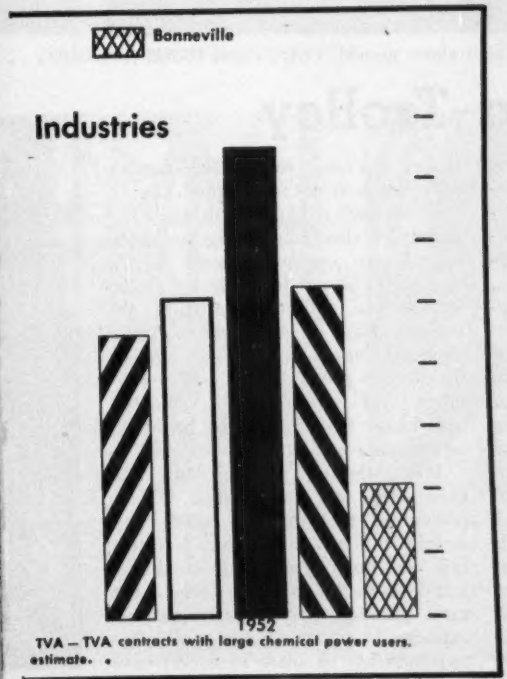
**Power Preface:** Prior to 1950, under the 1910 boundary waters treaty with Great Britain, United States was limited to 20,000 cu. ft. water/sec. to be diverted from the Niagara River for power generating purposes. It reached this limit in 1925. Proposed amendments to the treaty died aborning until 1950. (During World War II, emergency diversion of an additional 12,500 cu. ft./sec. was permitted, is still in effect.) The 1950 treaty raised the over-all diversion allowed the U.S. to 50,000 cu. ft./sec. on tourist season days and 100,000 cu. ft./sec. during off-season and at night. (Water taken when tourists are absent will be stored in a proposed dam for use when they are present and when diversion would detract from the scenic beauty of the Falls.)

Now there remains only the decision as to who shall carry out the development. That new power is sorely needed is unquestioned. At stake:

- New power plants to raise generating capacity at Niagara Falls from 440,000 kw to 1,500,000 kw at an estimated construction cost of $390 million.
- Preservation of the scenic beauty of the area.
- Expanded and new industries to boost employment and yield more taxes in the Niagara locale.

**Private Power:** Under the Dondero (R., Mich.) bill, private companies would get the right to develop additional hydroelectric power at Niagara. And, says private power spokesman Earle Machold, president of Niagara Mohawk, "We are ready, willing and

* Composed of Niagara Mohawk, Consolidated Edison, New York State Electric & Gas, Central Hudson Gas & Electric and Rochester Gas & Electric.




TVA – TVA contracts with large chemical power users. estimate.

## Private Utilities Say:

- Private development will effect an initial (first-stage) annual power cost reduction of $26 million through substitution of hydroelectric for more costly steam-generated power.
- The private plan provides an additional $23 million in federal, state and local taxes.
- Construction financing would not be at taxpayers' expense.
- There is no reason for governmental development. No flood control, irrigation, navigation, reclamation or sanitation functions are involved. And the Niagara power project has nothing to do with the controversial St. Lawrence Seaway and power project.
- The coalition of private utilities offers to reimburse the federal government for the cost of proposed remedial works to enhance the Falls' scenic beauty.
- Private power feels that it has already had incomparable experience in harnessing the Falls' power potential.

## New York State Says:

- Under the New York State Water Power Act (passed in 1931) only New York has the right to develop this project. That part of the Niagara River within the New York State boundary (coexistent with the international) is a natural resource of the state to be developed by the state.
- A plan (the New York State plan) that by law carries the greatest benefits of electric rate reductions to consumers through and in cooperation with existing private, municipal and cooperative systems is a bulwark against socialism.
- The state plan will produce the greatest economies of electric power production and distribution and avoid the waste of public-private competition, save New York consumers an estimated $25 million a year.
- State development blocks the spread of the federal power monopoly.
- New York is in the best position to integrate Niagara into a joint St. Lawrence power pool.

## U.S. Government Says:

- Niagara is an international river whose use has been decided by international treaty—an act that places responsibility for regulation and development on the federal government.
- An equitable distribution of resultant benefits and integration with other similar power developments could be accomplished only by the federal government.
- If other federal power projects serve as precedents, federal development will provide the cheapest over-all power (see chart).

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able to make the Niagara development."

Vitally concerned, large chemical process industry power consumers* are solidly behind private development, cite the danger of "creeping socialism."

Although the chemical industry, along with other Niagara industries, successfully protested a rate increase proposed by Niagara Mohawk last year, it is now willing to gamble with private power on future rates. For those who've had dealings with both public and private power, the feeling is they can get "as good a deal" from private organizations. Another says, "We've fared competitively well against companies using government-subsidized power."

**State Power:** New York State, meanwhile, wants no part of the private deal. Instead, State Power Authority Chairman John Burton proposes:

- That New York construct and operate the projects.
- Finance it by issuance of self-financing bonds.
- Pay no federal or local taxes (except where there is a loss of local revenue from condemned property), pass on these savings to consumers.
- Pool resultant power in the Northeast system, use existing private transmission lines.

* Including Hooker, Carborundum, Oldbury, Mathieson, Stauffer, Vanadium Corp. of America, International Graphite & Electrode, Kimberley-Clark, Great Lakes Carbon and Pittsburgh Metallurgical.

Riding high above ground, PC&C's new 85,000 lb. trolley . . .

# Transfer to a Trolley

**"New face, same base" is Dravo Corp.'s (Pittsburgh) pitch for its newly installed materials trolley at Pittsburgh Coke & Chemical Co. (Pittsburgh). And at an eighth of the estimated cost of the alternate solution, Pittsburgh Coke figures it got a bargain.**

A few months ago, PC&C put a new 22-ft. hearth blast furnace into production, doubled its daily output of merchant pig iron, faced the prospect of having to build a completely new ore bridge to carry the increased supply of raw materials to the blast furnace. Prodded by high costs and lengthy shutdown time involved, PC&C looked for another solution, decided on Dravo's new lightweight man-operated trolley. Dravo's big selling point: use of existing materials handling structures to speed construction and cut costs. In 13 hours, the trolley was ready to roll. Blast furnace operation was not interrupted.

Using high-strength alloy steels and aluminum sheathing in the trolley itself, Dravo engineers saved weight that could be put into a larger-capacity bucket without increasing the over-all load on the bridge. Other changes: lengthening bridge runway 300 feet to provide additional storage space and deepening the stockpile area below the bridge. The bridge itself remained unaltered.

While there is a load limit that eventually will be reached, Dravo points out that installation of lightweight trolleys on existing facilities, still in good structural condition, could—as in the case of PC&S—be the most practical way to up operating capacity to meet growing production requirements of blast furnaces, coke ovens and similar units.

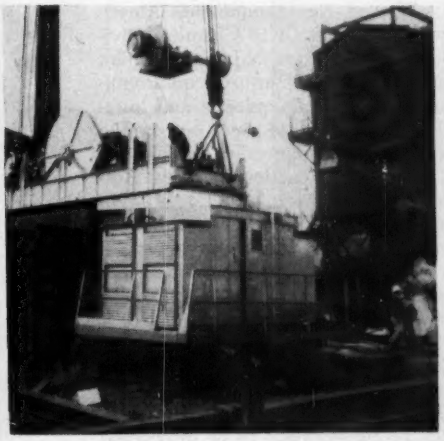
Burton sides with the other two factions in willingness to distribute power to neighboring states, but agrees with private power that there is no reason for federal construction or inclusion of power preferences.

**Federal Power:** Although co-sponsor with Representative Franklin Roosevelt, Jr., of a bill for federal development, Senator Herbert Lehman is primarily concerned with having a preference clause written into any bill that might pass. More a matter of precedence than rights, this clause, written into other public power projects, insures municipalities and rural co-ops (such as REA) of first call and reduced rates on power distribution.

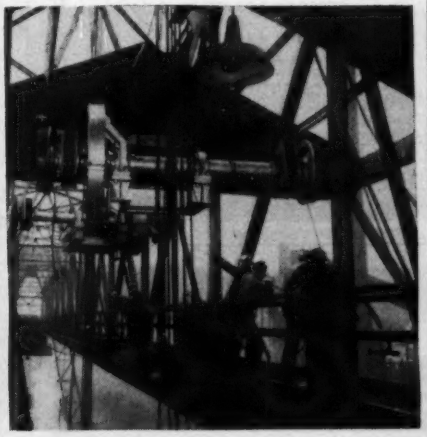
The federal bill would call for:

- Federal construction financed by a self-liquidating bond issue and payments in lieu of taxes to state and local governments.
- Transmission over private lines at a government-designated rate, or building its own (duplicate) lines if private power won't cooperate.* (Mohawk's Machold, however, in testimony before the Senate Foreign Relations Committee, declared that should a government agency develop

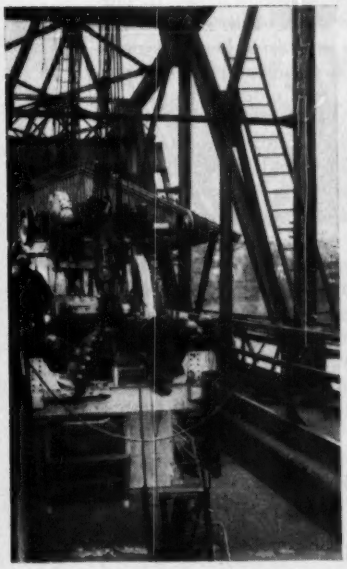
* Note: While the amount of power to be generated by the new Niagara development would be the same under either private or public control, rates would not be. Public power advocates say cost of production (i.e., cost at the bus bar or generating plant) under their plans would run about 3 mills/kwhr compared with about 5 mills/kwhr under private plans. Profit in power, however, comes in transmission, not in generation. And both plans call for transmission over existing private transmission lines.



. . . had to be lifted in three parts, with . . .



. . . final assembly executed 75 feet in the air.



Trolley frame is lowered onto axles . . .

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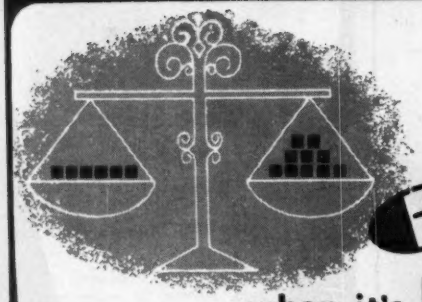

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## PRODUCTION . . . . .

Niagara, private utilities could cooperate.)

**Power Procrastination:** Threatening to burst its factory seams under increasing civilian and defense demands, Niagara's heavy chemical industry could well take its proposed expansions and ensuing taxes elsewhere. Witness Oldbury Electrochemical's Columbus (Miss.) site for its new plant (*CW, July 18*).

A little over three weeks ago, the House of Representatives tossed the issue into the Senate's collective lap where it is now racing against Congressional adjournment. President Eisenhower's position, still a matter of speculation, is important. And in the words of one chemical plant manager, 'Time's a'wasting."

## EQUIPMENT . . . .

**By Way of Naphthoquinone:** American Cyanamid's Calco Chemical Division (Bound Brook, N.J.) is now pilot planting manufacture of anthroquinone from naphthoquinone and butadiene. Purpose: to find out if the process is commercially feasible.

Briefly, the reaction involves addition of butadiene to 1,4-naphthoquinone, oxidation of the adduct to anthraquinine. Not a new process, it heretofore has been considered impractical because of the high cost of naphthoquinone. Now, says Calco, it has improved both the manufacture of the naphthoquinone and its conversion to anthraquinone. Just how much difference the improvements make will, of course, have to be discovered in the pilot plant.

A key intermediate in the synthesis of vat dyes, anthraquinone is currently made in the U.S. primarily by the phthalic anhydride-benzene method, while European procedure generally favors the older oxidation of anthracene. Calco, as a prime manufacturer of anthraquinone, is understandably interested in development of the improved process.

•

**Mechanical Mixer:** Ready to sell for $145.00, Fisher Scientific Co.'s (Pittsburgh) newly developed Fisher-Kendall Mixer combines stirring and tumbling motions to produce a homogeneous dry mixture. The motion of human sample-shaking, says Fisher, is embodied in this electric apparatus.

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**Safety Note:** National Safety Council (Chicago) has compiled its new 1953 booklet, "Working Together for Safety . . . A Manual of Safe Practices." The manual is now ready for general distribution.

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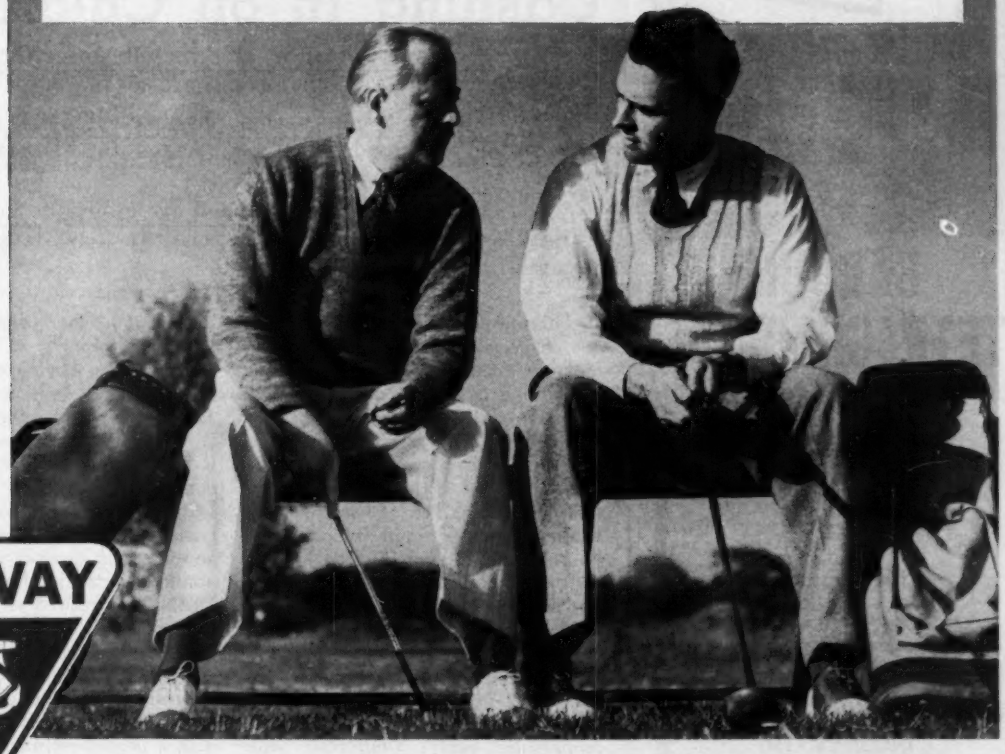

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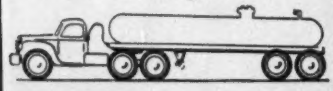

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# RESEARCH . . . .

**How Hooker Builds HET Acid and Hetron Resin**

1 **chlorination of pentane yields . . . polychloropentanes**

2 **further chlorination with heat and catalysts forms . . . hexachlorocyclopentadiene, or C-56**

3 **C-56 and maleic anhydride in a Diels-Alder condensation gives . . . HET anhydride**

4 **hydrolysis gives HET acid . .**

5 **which is cooked with glycols and maleic anhydride to . . . polyester base resin**

6 **cross-linking with styrene in a solution process produces . . . Hetron as it will be supplied to plastics manufacturers**

# Cashing In on Chlorine

A family of new chlorinated polyesters is Hooker Electrochemical Co.'s bid for a share of the resin business.

They're condensation polymers of HET acid, glycols and maleic anhydride, will be boosted for structural applications.

Both resins and HET acid are in production at Niagara Falls; the latter in quantities sufficient to spark interest in many potential noncaptive uses.

**If chlorine needed eulogizing,** any one of a score of basic chemical manufacturers could do the job. Very few would sing its virtues with more zeal than Hooker Electrochemical Co. (Niagara Falls, N.Y.). With chlorine as its lever, Hooker even now is prying open the door to the bountiful polyester resin market. Poised at the threshold: a new family of chlorinated polyesters tagged "Hetron." When it has crossed, Hooker—for the first time in its 48-year span—will be in the resin business.

Spur for the company's precedent-shattering resin venture is HET acid (or more precisely, the *cis* isomer of hexachloroendomethylenetetrahydrophthalic acid). Combined with glycols and maleic anhydride, HET acid gives a hard, brittle thermoplastic. Subsequent cross-linking of the resin (in solution) with styrene yields a light-colored, viscous liquid which may be converted (by heat or catalysts) to an infusible, insoluble solid.

Most striking attribute of the new polyesters is fire resistance. But, according to Hooker, several other features stand out, even in comparison with the broad spectrum of commercial polyesters, Chief among these: low shrinkage; chemical resistance; electrical properties; resistance to heat degradation; low permeability to air and water vapor.

**No Cracks:** Their ability to stand up to flame and heat, however, is the Hetrons' cardinal selling point.

The resistance of the new polyesters is pretty much a function of chlorine content. By ASTM test method D757-49, the resin—containing 30% chemically bound chlorine—burned at an extremely sluggish 0.17 inches per minute; when tried by ASTM method D635-44, it proved self-extinguishing.

But, Warns Hooker, "modifications . . . which contain less than 30% chlorine will be correspondingly less fire-resistant, as—for example—a composition formed by blending 1200 Z-1 with a nonfire-resistant flexible resin." Where a very high degree of flame resistance is required, antimony trioxide is useful.

Hooker says heat stability "is considerably greater [than that of] standard polyester resins and very much greater than [heat stability of] other fire-resistant resins." Basis for this firm avowal is found in the results of a series of heat aging tests. Castings made of a Hetron showed the least weight loss of seven test castings, after baking 30 days at 200 C. And, unlike all other test castings, those of the chlorinated polyester developed

no cracks at the elevated temperature, retained more than 90% of their crush-resistance.

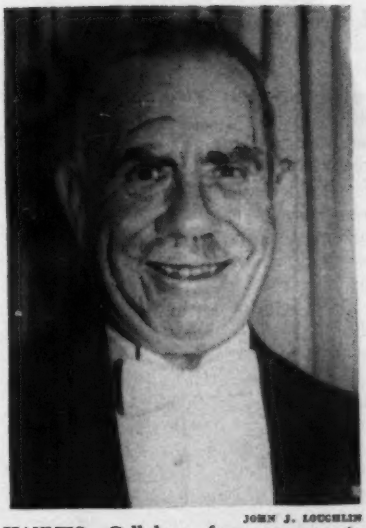
**Sporting Chance:** Structural applications are high on the list of potential outlets for the new Hooker resins. Resin-bonded composition wood panels and glass fiber-reinforced building components are cases in point. Plastic automobile bodies, now making their appearance in American-built sports cars, represent another tantalizing possibility. Other end-use angles: in the manufacture of electrical equipment, crude oil storage tanks.

Together with intermediate HET acid, the Hetron polyester is a tangible dividend of the company's chlorine research program. Groundwork for the development of both materials was laid with a Hooker-supported probe of chlorinated paraffin hydrocarbons at Purdue University. Key result of that effort was hexachlorocyclopentadiene, which is readily converted to HET anhydride by a Diels-Alder condensation.

Here, in more detail, is how Hooker makes HET acid: chlorination of pentanes (U.S. Patent 2,473,162) to polychloropentanes starts the process. The latter are chlorinated further (with heat and catalysts) by a method on which Hooker has applied for a patent. Result: hexachlorocyclopentadiene, trade-named C-56. Condensation with maleic anhydride gives HET anhydride.

In the mind's eye of a Hooker research team it was just a short step from dibasic HET acid to a structurally novel chlorinated polyester resin. The transition took several years of laboratory work. Both acid and polyester are now in substantial pilot production at Niagara Falls.

If the new pyrophobic resins catch on, HET acid has its work cut out. But the latter is not irrevocably bound to the fortunes of the former: analogous in chemical behavior to phthalic acid, HET might make its own way in the manufacture of alkyds and other polyesters, as an intermediate in the synthesis of a host of nonresinous products.



JOHN J. LOCCHLIN

**HAYNES: Cellulose, from papyrus to plastics.**

# Cotton, Corporations, Chemistics

**You could easily** be excused for not finding any reasonable connection between cotton farmers, corporate management and the father of organic chemistry. Timing is their common bond; for these unlikely companions populate the pages of three new books being read this week by industrial research directors and research-minded industry leaders.

• A definition of sound research management was the avowed goal of Philip R. Marvin in his "Top Management and Research" (Research Press, Dayton, O.). A former research director, now vice-president of Commonwealth Engineering Co. of Ohio, Marvin can look at research through a businessman's eyes. His clear recognition, ". . . profit spells out the reason for industrial research," puts things on a practical basis from the start.

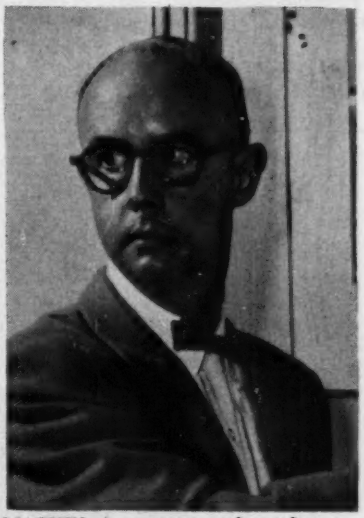
From the collective experience of over two hundred industrial research executives. Marvin has distilled the essence of research management practice. But he also is aware of the obligation of top corporate management to the research organization, cites four top-management responsibilities: work in close liaison with the research director in planning a program; appoint a research manager who is both a qualified administrator and scientist and keep him informed of company policies; recognize the potential contribution of research in appropriating funds; and insure compliance of performance with the program planned.

In equally down-to-earth terms, the ground rules for program evaluation and research contracting are laid out. None of the observations or conclusions is startling; in most cases they're just plain common sense. That author Marvin knows this is clearly apparent from his attitude toward management responsibilities. He ventures: "if these [responsibilities] are but expressions of common sense, perhaps some service is performed in giving expression and definition to common sense as applied to research management."

• It's only a short hop to Friedrich Wohler, founder of organic chemistry and one of the patron saints of Jacob Rosin and Max Eastman's "The Road to Abundance" (McGraw-Hill). Conceived by Rosin, director of research of Montrose Chemical Co. (Newark, N.J.), and executed in collaboration with *Reader's Digest* writer Max Eastman, "The Road to Abundance" prophesies man's freedom from natural sources of food and mineral wealth.

Nature's replacement: "chemistic" society—"the kind of society that would arise if the natural sciences, with chemistry in the lead, were given a chance to create a genuine abundance of all the necessities of life." For Rosin, this isn't merely a visionary theory. He has a few ideas on how it can be achieved.

First, there must be an end to bondage to the plant. Anticipating howls from the nature cult, Rosin flatly



**MARVIN: A management boost for common sense.**

**ROSIN: Nothing natural about natural food.**

states, "There is . . . nothing profoundly natural about our eating natural food. To take an example: the proteins of animals and vegetables are so alien to the individual proteins of each human being that they have to be broken down into amino acids by our digestive system before our organism can start synthesizing out of them our own individual proteins."

Foods will be synthesized, complete with flavors, say the authors: "Once we free ourselves of all prejudices and pseudo-scientific misconceptions, the problem of synthesizing food does not differ in any essential way from that of synthesizing other natural products . . . " To document his case Rosin cites the promising advances being made in chemical and biological synthesis of nutrients, gives a well-deserved nod to Carnegie Institution of Washington's algae research.

Freedom from the earth's mineral wealth ("Freedom from the Mine"), in the authors' estimate, will have to be a carefully planned operation. The central problem is "the exploitation of that dilute abundance (mineral wealth of the ocean) which surrounds us on all sides." Three questions, answered by the authors, define the scope of the problem:

(1) "Is it possible, in principle, to extract and concentrate the different chemical elements found in such tremendous dilutions?" Yes, but at a great cost in energy.

(2) "Can such methods of extraction ever become a practical industrial procedure?" Yes, by harnessing the energy of the sun, for example.

(3) "Does our present state of knowledge permit us to foresee such methods?" Yes, when energy costs are cut, techniques like ion exchange and chromatography will be practical on a large scale.

A project as ambitious as the establishment of a chemistic society can't help but have broad sociological overtones. In the authors' estimate, it's the hope of mankind. Their appraisal: "Our present society is based on the struggles of man against man, with specialists in this field—called politicians—forming the dominant class. The chemistic society will be based on the struggle of man against nature, with . . . the scientists . . . as leaders . . . Chemistry, with the help of physics, can save . . . [civilization] by creating a new world of abundance."

• Nature gets its turn in Williams Haynes' "Cellulose: The Chemical That Grows" (Doubleday). A history rather than a compendium of chemistry, the volume literally has the first and last word on cellulose. It's all there from Egyptian papyrus to rayon, cellophane and the cellulosic plastics.

Abundance of processing information, production statistics, raw material data, etc., places the emphasis squarely on industry. But there's an interesting story to be told and raconteur-historian Haynes keeps it lively. The book doesn't say very much that is new, but it does say—and well—just about all there is to say about the titular subject.

•

**On the Fly:** If the chlorinated insecticides lose effectiveness, there's all the more chance the phosphate derivatives will take up the kill. Latest entry in the insecticide war is Geigy Co. Inc.'s (New York) Diazinon.

Synthesized originally in Geigy's Basle, Switzerland labs, the compound in 0,0-diethyl-0-[2-isopropyl-4-methyl-pyrimidyl (6)] thiophosphate. It's colorless liquid—light brown in tech grade, soluble in a number of solvents.

Diazinon is being tested particularly as a residual control against houseflies, although it has shown effectiveness against other insects, too. It is generally applied as a 25% wettable powder, about 16-32 lbs. in 100 gallons of spray for use on houseflies.

Although it must be handled with care because it can be absorbed through the skin, it is regarded as less toxic than some of its phosphate cousins.

•

**Lattice Work:** For those interested in determining atomic lattice constants in X-ray diffraction work, North American Philips Co., Inc. (Mount Vernon, N.Y.) has developed a new back reflection camera with a radius of 60 mm and weighing only 9½ lbs.

•

**Ceramic Advance:** The Air Force reports a new technique for stabilizing zirconium oxide. It's based on the use of "special additives," will permit new refractory fabrication methods, says the Air Force.

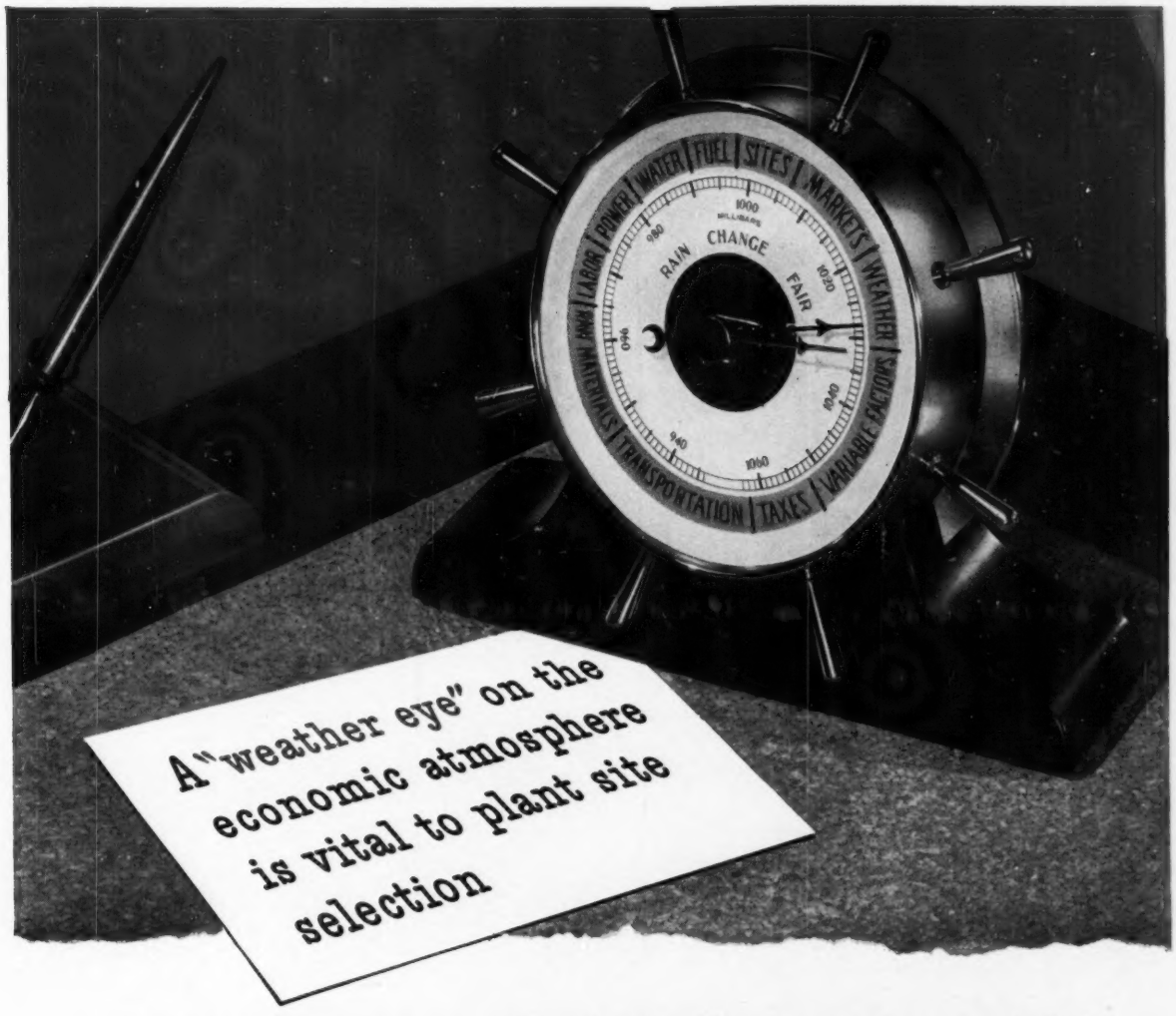
## Looking for the Bounce

LIKE LOOKING for lost chords, trying to find out what happens to the bounce in rubber can be fairly frustrating. But with the patience of Job, researchers keep probing.

Here, in Witco Chemical Co.'s Chicago laboratory, one such researcher puts rubber samples in a modified Crabtree-Kemp ozonator. Her quest: finding out how ozone attacks rubber and what can be done about it.

Until a short while ago, scientists believed that the sun's rays or temperature changes caused the cracks in rubber. But the chemists proved otherwise, demonstrated that ozone in the air was the main culprit.

Now, by subjecting samples to controlled ozone concentrations, Witco researchers hope to discover just how the culprit operates and the most effective method of curbing it.

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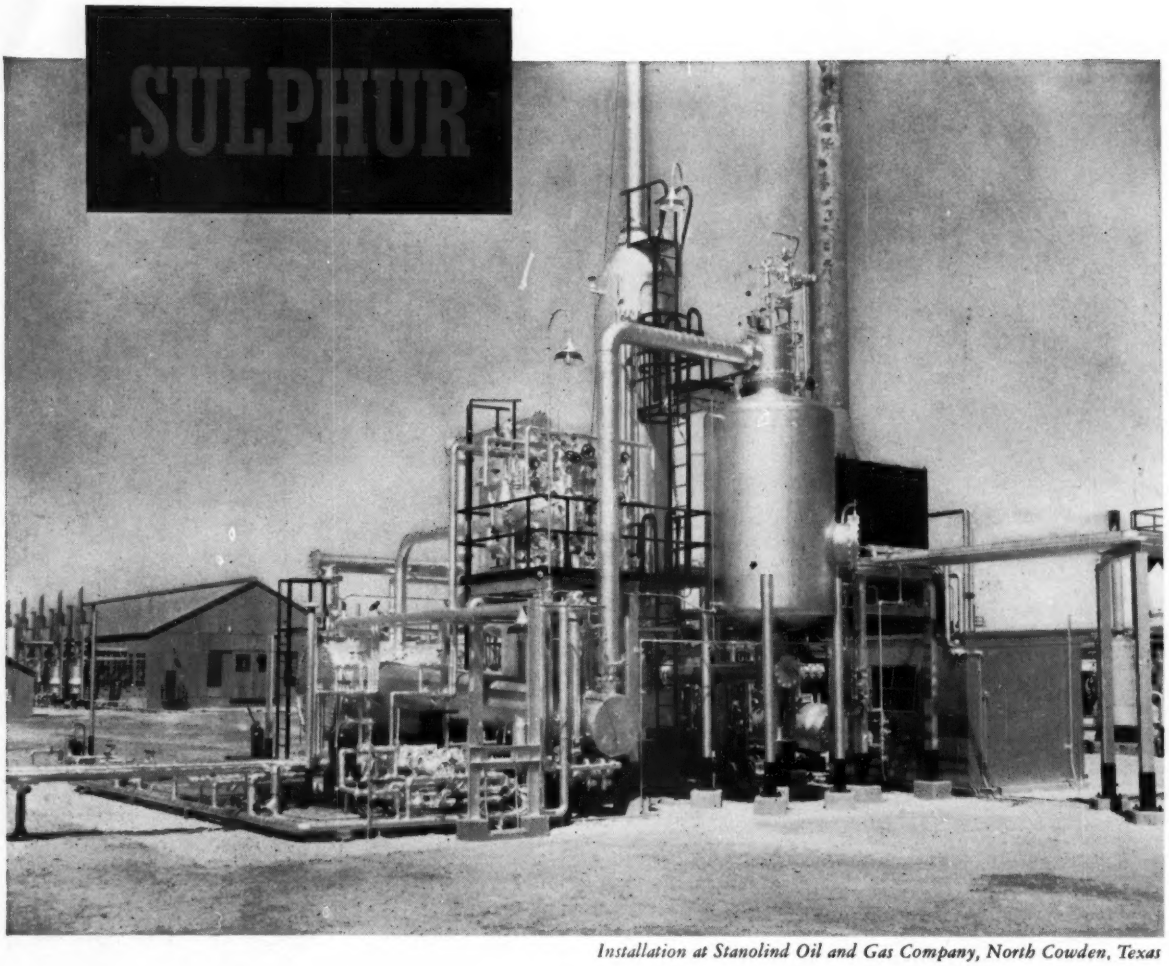


*Installation at Stanolind Oil and Gas Company, North Cowden, Texas*

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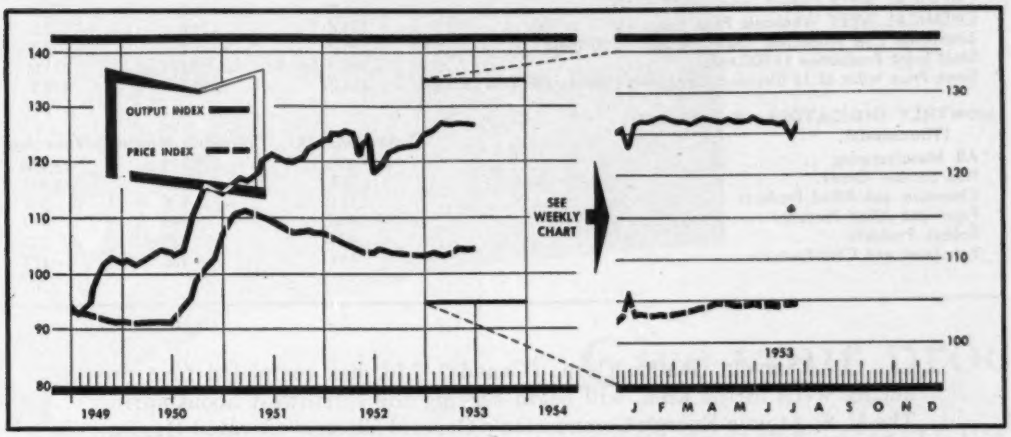



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

## MARKET LETTER

Dow Chemical's proposed move into the glycerine producing field via a near-$5.5 million certificate (CW Newsletter, July 18), is generating a hubbub of market-place speculation. Some tantalizing questions: How much will Dow make? What process? When?

Though the company is understandably tight-lipped as to details, admits only that it will build at Freeport (Tex.) and will use a Dow process, some astute observers are coming up with answers of their own.

One fair "guesstimate" is that starting in late 1955 the new plant will be turning out about 25-35 million lbs/year. That takes into consideration the amount of money to be spent plus the fact Dow has already set up propylene and chlorine units. Talk, too, is that the so-called "Dow process" may be similar to Shell Chemical's glycerine production route.

When the Office of Defense Mobilization trimmed the glycerine goal 10 million lbs.—resetting it at 268 million by Jan. '55 (CW Market Letter, July 4)—soap by-product material figured to account for 140 million lbs. of that new target; synthetic glycerine about 128. Subtracting Shell's capacity—soon to be close to 72 million lbs.—leaves about 56 millions lbs. of synthetic capacity open. And if Dow takes roughly half this amount there'll be room for still another new producer.

•

Another certificate granted Union Carbide's Bakelite Div. to build a $360,000 epoxy resins plant (Bound Brook, N. J.) is, strangely enough, sparking even more speculation concerning Dow's future plans.

Bakelite, with acetone and phenol available, must go shopping for the necessary epichlorhydrin. And that means buying from only-producer Shell. Epichlorhydrin is a co-product of that company's synthetic glycerine manufacture.

On the other hand Dow Chemical—if it does use a similar-to-Shell glycerine process—will also wind up with epichlorhydrin. It does have bis-ohenol on hand. Combining the two may mean Bakelite and Shell will have to move over for another epoxy resins maker.

•

Out of the realm of speculation but still in the future—by some eight months—is production of "gas ice" from British Columbia's newly developed carbon dioxide gas field near Vernon in the interior.

| WEEKLY BUSINESS INDICATORS | Latest Week | Preceding Week | Year Ago |
|---|---|---|---|
| CHEMICAL WEEK Output Index (1947 = 100) | 125.9 | 125.9 | 120.9 |
| CHEMICAL WEEK Wholesale Price Index (1947 = 100) | 104.8 | 104.8 | 102.3 |
| Bituminous Coal Production (daily average, 1,000 tons) | 1,533.0 | 1,329.0 | 1,102.0 |
| Steel Ingot Production (1,000 tons) | 2,180.0 (est.) | 2,128.0 (act.) | 891.0 |
| Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.) | 244.2 | 243.1 | 250.5 |

| MONTHLY INDICATORS—Employment (Thousands) | Latest Month | Preceding Month | Year Ago |
|---|---|---|---|
| All Manufacturing | 13,820 | 13,718 | 12,476 |
| Non-durable Goods | 5,558 | 5,525 | 5,411 |
| Chemicals and Allied Products | 511 | 516 | 502 |
| Paper and Allied Products | 446 | 441 | 419 |
| Rubber Products | 221 | 220 | 207 |
| Petroleum and Coal Products | 191 | 188 | 177 |

Year-old Gas-Ice Corp. (Canada) Ltd. has completed four producing wells in the area, will begin serving the Northwest about spring. The U. S. Atomic Energy Commission's General Electric-operated Hanford (Wash.) plant—now using cylinder gas—is likely to accept bids on the new firm's dry ice. Converters can transform the ice into gas, eliminate handling cylinders.

•

A transformation of a different sort is taking place in the chemical market place; competition is again manipulating prices—at least in the plasticizer arena. Late last week several of the plastic ingredients, among them dioctyl phthalate (DOO), diisooctyl phthalate (DIOP), were cut 2¢/lb.

The action may be a move to price dicapryl phthalate (DCP) out of the market. The new DOP, DIOP tags now read a similar-to-DCP 35 cents/lb. (t.c.). Chances are that producers of the latter may attempt a counteraction, may also knock off a cent or two to meet the competition.

•

Some price rivalry is also evidenced in the coke-oven ammonium sulfate field. Domestic producers' resumption of port price quotations is aimed at stepped-up competition from import material. With European sulfate pegged at $47/ton, f.o.b. the port, users often find it cheaper, even after adding freight rates, than domestic material tagged at $49.50/ton, f.o.b. the plant (Birmingham, Ala., area).

Under the re-established system, customers—in many cases—will get a matched-to-foreign-price domestic sulfate. Chances are, though, U. S. producers will find it feasible to pull out of the southern coast market to some extent, begin shipping northward.

This could relieve the still-tight Midwest consuming areas; at the same time give some northern users a double source of supply.

•

Late last week, Shell Chemical came through with a revised price schedule for its resins and plastics. Only change from the previous list, though, is the creation of carload prices for three of its epoxy resins.

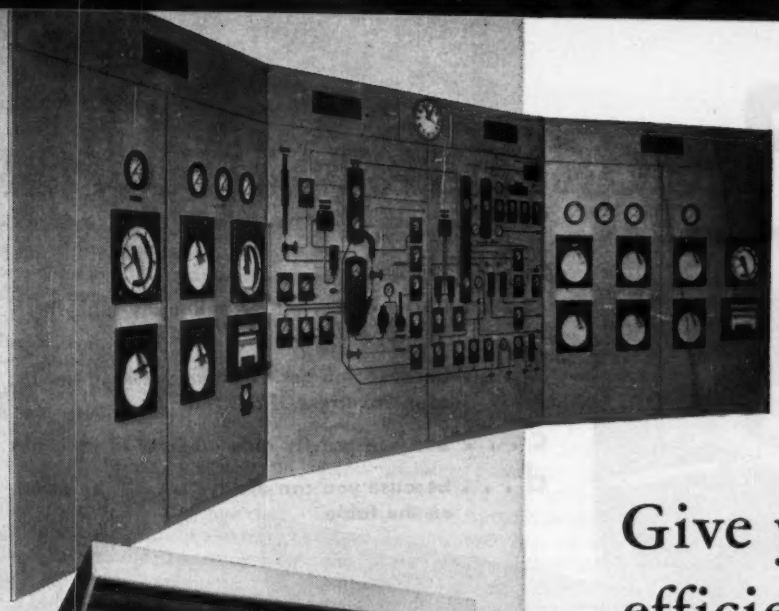
The new category anticipates production from Shell's soon-to-be-in-Houston (Tex.) resins plant. Facilities there will go onstream late this year, eventually hit a reported 10 million-lb./year output level.

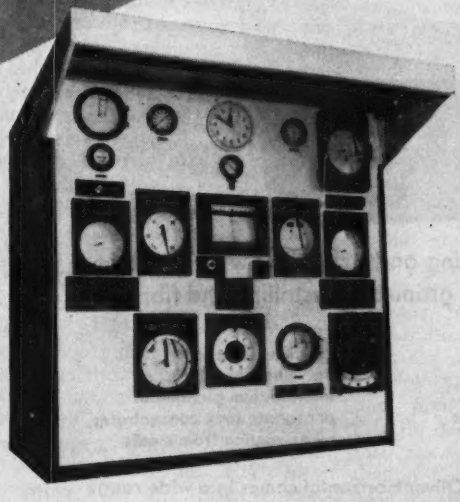
**SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending July 27, 1953**

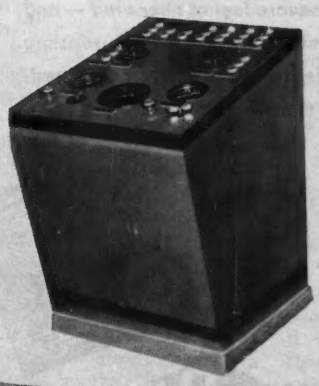
**DOWN**

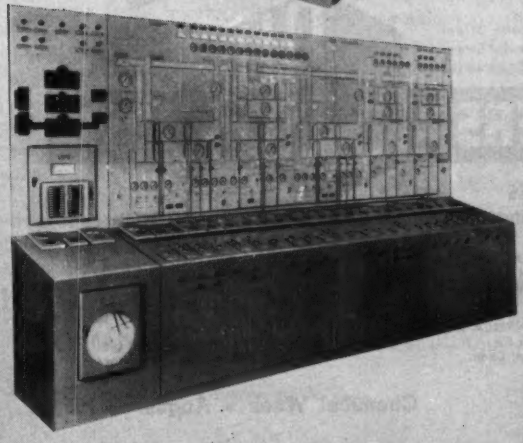
| | Change | New Price | | Change | New Price |
|---|---|---|---|---|---|
| Di-iso-octyl phthalate, tanks, dlvd. | $ .02 | $ .35 | Phenol, 82-84%, tanks, frt. alld. | $ .005 | $ .155 |
| Di-actyl phthalate, tanks, frt. alld. | .02 | .35 | Tin chloride, stannous anhyd., dms., wks. | .012 | .787 |

**All prices per pound unless quantity is stated.**









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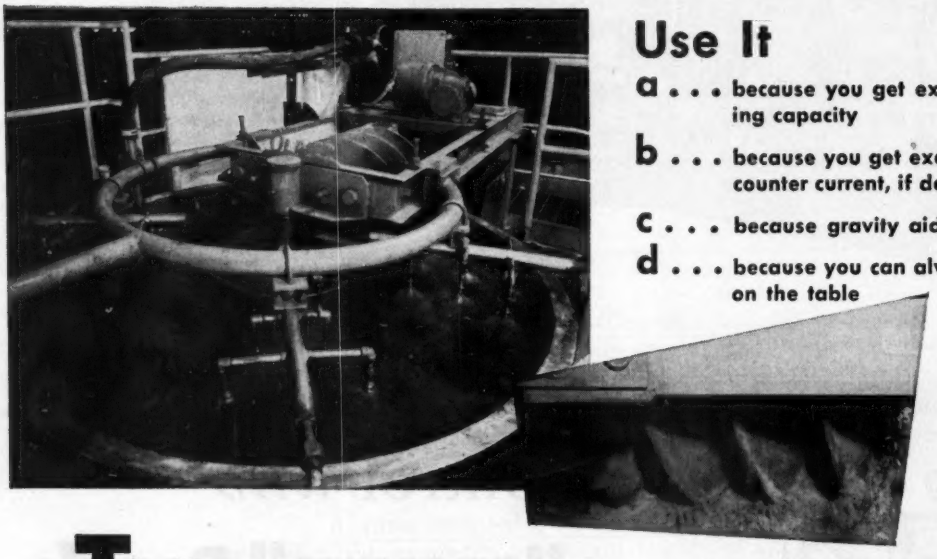

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# Storm Over Ammonia

**Executives of companies that produce anhydrous ammonia this week were forecasting a possible market dislocation. Reason: stepped-up demands by the Army have caused the Department of Defense to requisition (through issuing defense orders) a part of each producer's share of ammonia production.**

In outside appearance, such an allocation system would seem to be a fair one. But a placid-appearing surface may hide a vicious undertow. Two strong currents can be discerned here: they divide the 14 companies that produce and sell ammonia.

The split comes between the companies that produce the material in plants leased from the government and those that make ammonia in their own facilities. The division puts on one side Allied Chemical, Commercial Solvents, Dow, Du Pont, Hercules, Lion Oil, Mississippi Chemical, Monsanto, Pennsalt, Shell Chemical and Spencer. On the other side are Mathieson, Phillips Chemical and San Jacinto.

Again, looking at the surface, the reason for the wide differences of opinion is hard to see. It would seem that the brisk business producers have been enjoying—witness the $6/ton price hike on ammonia (*CW, June 13*)—would allay any quarrels. Certainly supplies are tight, but government needs must be met.

**Hidden Reef:** A fair spreading of future hardships seems to be the crux of the matter. Producers with different types of sales and distribution can't equally meet the new situation.

One official (of a company owning its facilities) relates this experience:

A few days after the Army had informally notified companies it expected them to sell a percentage of production to the government, beginning in August, it got a call from a long-time contract customer. The customer had been approached by a salesman from another firm, which averred that, because of the coming defense requisition, his present supplier could not fulfill its contract. So why not, he was quoted, buy from us? The salesman worked for a company that leased its plant from the government.

By the time a few whispers of this event made their way to different producers, the arguments on competition between government-leased and privately owned facilities were being heard again.

**Dormant No Longer:** The battle on this point is not a new one. Both sides have their proponents. Each has telling arguments.

Producers who own their plants feel they are competing against government capital and, thus, against themselves. Not so, say the leasers. A contract to lease is just that: the independent companies could have bid on such a lease. In reply, the private operators point out that lease agreements with the government include a clause through which 100% of production may be taken over on 30 days' notice; undoubtedly, too, if such recapture clause were not included, the successful lease bid could and would have been higher. But remember, say the leasers, all requirements for materials under the Defense Materials System must, according to government legal experts, be made pro-rata on capacity.

The arguments go on for days. The independent companies, however, are pressing for a policy decision from the Eisenhower administration on competition between privately and publicly owned plants.

**Look Ahead, Neighbor!** The fact that producers are arguing now, though, doesn't obscure the fact that they are actually jockeying for position in the ammonia sales picture a year to 18 months from now. With several new plants scheduled to come on line in the next year, there is at least a chance of temporary or regional market dislocations. And every producer would rather have the competition dislocated.

The Army, under the DMS, writes its own orders for the materials it needs. In all the fuss, there has been no argument but that the Army needs the ammonia, and that it must get it.

Actually, producers have voluntarily supplied the Army with the tonnages it desired in July. Will probably do so in August. It's doubtful, though, that, barring evidence of a continuing mediation effort by the federal government, the same cooperation will be extended in September.

If all producers contribute equally, each would give about 10% of capacity. Perhaps the leasers—who informally say they're willing to supply more than 10%, percentagewise—might agree to supply, say, 40% of total needs—pro-rated on their capacity. The companies owning their plants would make up the rest on a pro-rata percentage of their own.

Undoubtedly, there is a middle way. All that remains is to find it.

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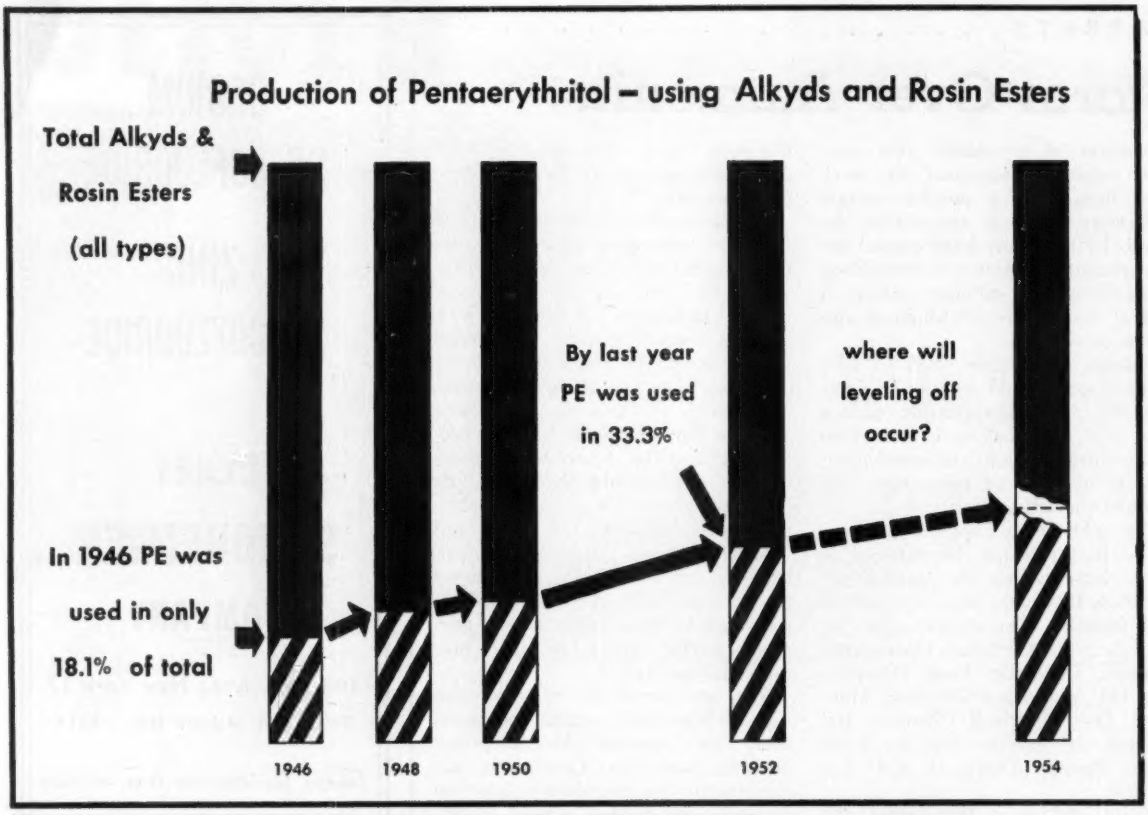
Production of Pentaerythritol – using Alkyds and Rosin Esters
Total Alkyds & Rosin Esters (all types)
In 1946 PE was used in only 18.1% of total
By last year PE was used in 33.3%
where will leveling off occur?
1946
1948
1950
1952
1954

## Table I

### Pentaerythritol Supply and Demand

| | Capacity (million lbs.) | Production (million lbs.) | Production (% of capacity) |
|---|---|---|---|
| 1950 | 36 | 36 | 100 |
| 1951 | 56 | 45 | 80 |
| 1952 | 60 | 41 | 68 |
| | | Estimated Demand (million lbs.) | Estimated Demand (% of capacity) |
| 1953 | 67 | 47 | 70 |
| 1954 | 92 | 54 | 59 |

## Table II

### Pentaerythritol vs Glycerine

| | Alkyds and Rosin Esters Production PE-containing (million lbs.) | Alkyds and Rosin Esters Production Glycerine-containing (million lbs.) | Jan. 1 Prices (approx.) (cents/lb.) PE | Jan. 1 Prices (approx.) (cents/lb.) Glycerine |
|---|---|---|---|---|
| 1946 | 58 | 218 | 27 | 17 |
| 1947 | 68 | 225 | 27 | 55 |
| 1948 | 82 | 210 | 32 | 40 |
| 1949 | 99 | 237 | 32 | 40 |
| 1950 | 113 | 292 | 29 | 25 |
| 1951 | 137 | 297 | 34 | 54 |
| 1952 | 164 | 261 | 33 | 54 |
| 1953 | 190 (est) | 280 (est) | 33 | 44 |

# Looking to Long-Term

**Between now and next spring** there'll be new pentaerythritol capacity going onstream (in this country and in Canada) greater than the total U.S. production of four years ago. Through the combined efforts of two newcomers, two major veteran producers, and a regional maker, pentaerythritol production potential will shoot up more than 30 million lbs. over present capacity.

Spelled out, the several new or expanded operations array themselves like this:

- Canadian Chemical Co., Ltd., Celanese affiliate, is this month entering the domestic market with a new supply from its 15-million-lb. Edmonton, Alberta, plant.
- Long-time producer Hercules Powder Co., readying its 6-million-lb. expansion at Mansfield, Mass., expects to be offering the first of its new material before the end of the summer.
- Oldtimer Trojan Powder plans to have its brand-new Illinois plant onstream about the first of the year. Reported unofficially as doubling Trojan's facilities, the addition should add about 10 million lbs. to the total.
- Down in Texas, on the Houston

Ship Channel, Warren Petroleum's plunge into petrochemicals (*CW, June 6*) involves, among other chemicals, an estimated capacity of 2.5 million lbs. of pentaerythritol. Warren's plans call for initial output in January.

• Commercial Solvents Corp., now pilot-planting in Agnew, Calif., expects to shift into half-million-pound annual operation by the end of this year.

Anticipation of all this additional material pleases the 150-odd consumers of pentaerythritol. To them it means that feast-or-famine supply is past, for several years at least.

But from the other side of the counter, the producers are probably viewing the picture with mixed feelings. Reason: unless pentaerythritol demand, already brisk and growing, spurts in unexpected directions, consumption won't catch up to capacity for the next four or five years. Next year, especially, with output pouring from the expansions, an oversupply condition (*see Table I*) looms.

Both through talk and action, pentaerythritol makers are showing what's on their minds these days. A couple years ago, when material was in tight supply, sellers were playing the tunes of (1) superior resin-making and (2) price stability. Today, staring into a more competitive future, producer thoughts are increasingly upon price and cost.

Conversation centers around:

• Higher glycerine prices and a continued tight glycerine market. Based on past performance (*see Table II*) an accelerated shift from glycerine to pentaerythritol may be expected under such conditions. However, increased synthetic glycerine production (*CW Newsletter, July 13*) will tend to counteract this tendency.

• Lower pentaerythritol manufacturing costs—presumably leading to lower prices—through (1) a new continuous process and (2) establishment of a more basic raw material position by the producers. At least three makers are known to be taking steps toward producing their own formaldehyde, principal component.

Eventually, the supply-demand imbalance should right itself. Producers, taking a longer-range view, are confident that the pentaerythritol market will in due time take up the excess capacity.

One well-placed observer summed it up this way: "If all prospective suppliers have now declared themselves, this situation should all smooth out before long. But anyone else planning to go into pentaerythritol production right now is crazy."

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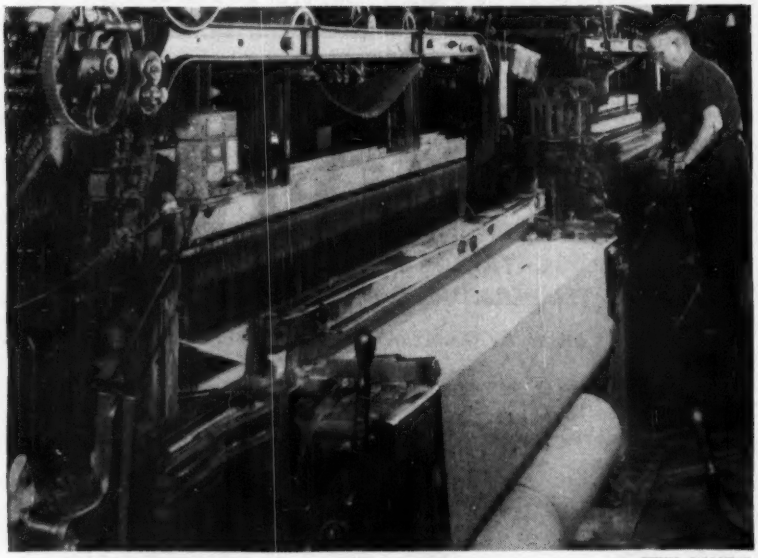
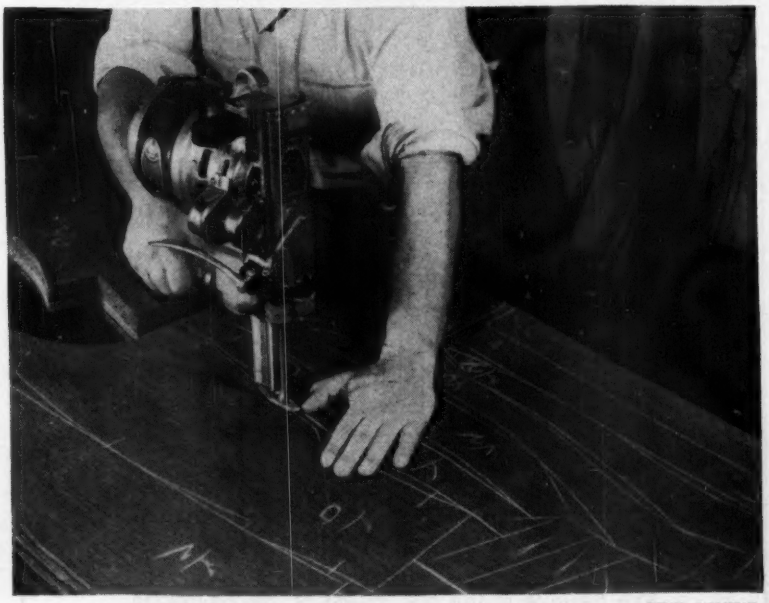


EWING GALLOWAY

**TRANSITION PERIOD: There's a revolution taking place in the mills . . .**



EWING GALLOWAY

**. . . and in the garment centers. Cautious opposition to synthetics . . .**

# Crazy-Quilt Revolution

**America's chemical industry** has a revolutionary reputation. Repeatedly during the past few decades, it has spawned technological revolutions in industrial segments other than its own. But rarely, if ever, has the chemical industry generated so much partisan opinion (among those who will be affected most) as is to be found today in the textile industry.

For the first time, the chemical group appears to be practically forcing a revolution onto a somewhat reluctant industrial following. The new synthetic fibers are being cursed as well as blessed by the weavers, knitters, converters, cutters and retailers who must handle the synthetics as they traverse the complex route between spinnerette and consumer.

To delineate the battle lines of this continuing revolutionary action, CW editors last week interviewed dozens of textile executives from coast to coast.

For this is the critical month in what will probably prove to be the synthetic's most critical year. Summerweight suits and dresses have now either made the grade or flopped (Bond Stores is holding a cut-rate sale on synthetic lightweights, yet other retailers swear they could have sold more if they had had them), and clothing store buyers are putting the final touches on their orders for fall and winter garments.

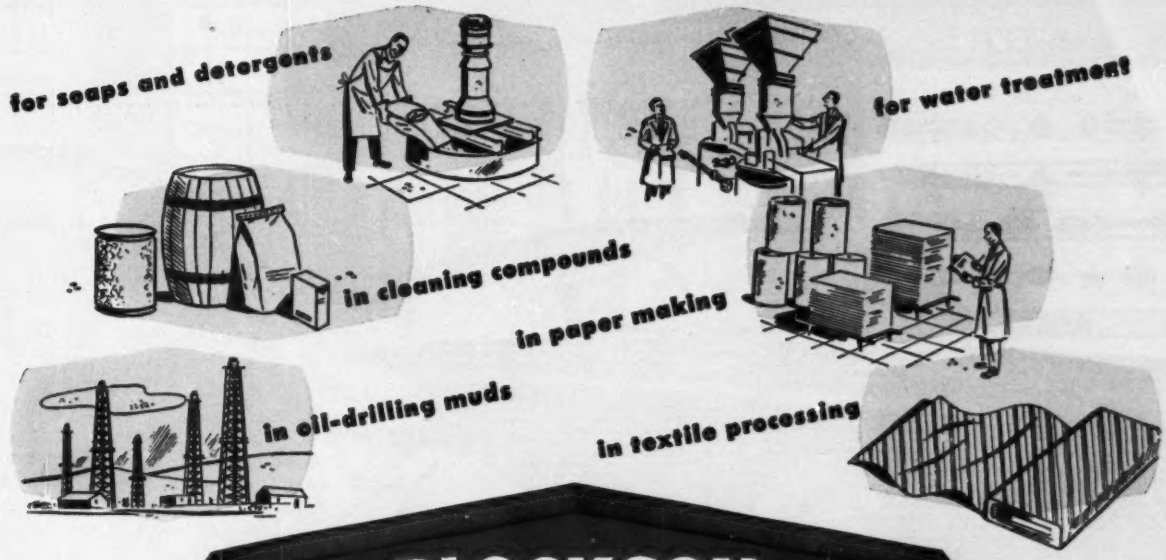
The year 1953 is critical because it marks the first time that the chemical industry has been able to provide a variety of synthetics—in quantity. Polyamides, polyesters, acrylics, and vinyl-acrylics have now all moved out of the curiosity "test sample" stage.

Taking no chances that this production will back up on them, the fiber makers have indulged in an expansive promotional campaign—aimed at the ultimate consumer. This campaign has been phenomenally successful in arousing interest and demand at the retail level. Yet, strangely, it is this effort that has most aroused some of the textile people against the synthetics. Typical comment, by a department store buyer in New York: "Synthetics are overadvertised and overpromoted. I buy them because they are in great demand by people. Can't see them myself. Prices are ridiculously high."

This type of sentiment poses a commercial riddle for the fiber makers: if they slacken their direct-pro-

EWING GALLOWAY

**. . . ie being bowled over by surging consumer demand.**

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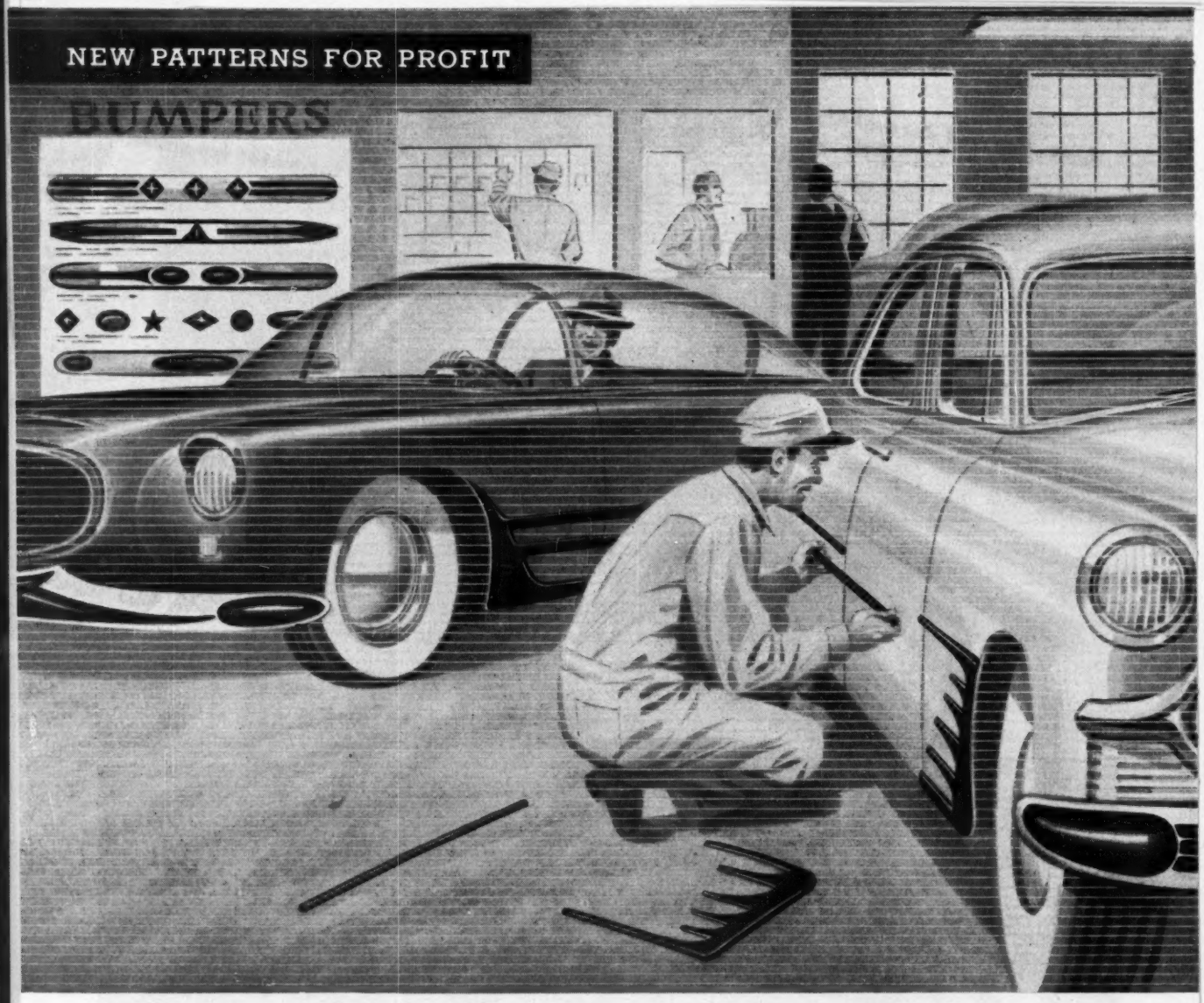


# Would "Cushion Bumpers"

## Bump Up Sales for Automotive Parts Manufacturers?

Automotive parts manufacturers might be overlooking a potential profit-maker which could earn big money . . . a strong, resilient bumper and snubber which could go all 'round the car.

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These easy-to-color elastomers are versatile. Styrene-butadiene elastomers can be molded and cured directly to the final product or ordered as cured sheets, slabs or blocks. They range in resilience from the pliability of a "crepe" shoe sole to the hardness of a golf ball.

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motion activities, their future is precariously tied to the disjointed and unpredictable whims of countless individual textile men. Yet if they continue their present approach, they will probably just increase the chances of potent guerrilla action by stubborn antisynthetic holdouts.

**Antagonism:** Such opposition can take many forms and comes from practically all corners of the textile trade. Here are some of the expressed opinions:

- An upholstery executive: "The fiber producers have disseminated information . . . in such attractive terms that they've created gigantic consumer demand long before they were in a position to deliver the goods . . . Fiber manufacturers and textile men should test their end-products in their own labs and not on consumers."
- The National Institute of Dry Cleaning: "Fiber promotions can be misleading when taken as facts on fabrics. We've been told that [synthetic] fabrics resist wrinkling, therefore need little or no pressing. But we know from experience that some of the fabrics made from 'miracle' fibers do wrinkle in wear and cleaning—and that steam and heat are necessary to remove these wrinkles."
- The National Assn. of Retail Clothiers and Furnishers: "According to a survey of 86 men's stores throughout the country, 42 merchants have received consumer reports that the new fibers are not living up to full consumer expectations."
- The results of a recent *Tide* magazine poll covering 200 marketing, advertising and public relations experts: 85% regularly wear summer-weight suits to work, but only 20% preferred all-synthetic fabrics. Another 20% are wearing blends, a hefty 47% are staying with all-wool garments.
- A candid comment from a San Francisco women's sportswear sales clerk: "Women don't want washable clothes. It's less bother to send them to the cleaners . . . Our department's fall collection is exclusively wool—no synthetics. The new fibers were popular for a while, but they're no longer a novelty. And people are tired of their predominantly pastel shades."
- A West Coast carriage-trade coats-and-suits buyer: "Despite their high price, synthetics are not suitable for expensive clothes . . . A woman won't throw a $189 suit in a tub."

**Enthusiasm:** Much of this negative attitude appears to come directly from a sentimental resistance to change of any sort. Another factor is the distaste at having to add one more vari-


what price

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able to the already hopelessly complex job of predicting consumer likes and dislikes. Textile men—proud of their free-wheeling and individualistic traditions—just don't like to have their hands forced by a public demand that has been generated by nontextile sources. They fret at the fact that they have no control over the advertising copy on which the public builds its expectations. They know that it will be difficult—and often impossible—to deliver these fabric attributes at competitive prices. Moreover, they are acutely aware of the dangers that come from hitting the market with products that have not yet had all of their production kinks resolved.

But these are all cobbles that time alone can smooth down. Meanwhile the synthetic revolution continues apace, fast winning converts among even the most stubborn scoffers. Says the buyer for the piece-goods section of a New York department store: "Up till now we've handled practically none of the synthetics, preferring pure materials. But we may have to change our minds in the near future because the demand is getting too big."

The public's enthusiasm is highly contagious—especially in view of the textile industry's effort to pull itself out of its recent depression. "Dacron is the magic word," says a Marshall Field executive in Chicago. "Du Pont has done a splendid job of letting the public know about it in all of the popular magazines. The customer is curious and now the shortage of these suits adds to the magic—everyone wants one."

From a department store buyer in Houston comes the frank admission that "the main reason we keep buying is on account of the tremendous demand built up by the advertising campaign created by Du Pont . . . Our customers, too, are buying synthetic-fiber suits because we use them as a sales 'gimmick' and sales stimulator."

**Danger:** This "gimmick" approach can be dangerous, but it is an almost inevitable result of the promotional approach being hammered out by the fiber makers. Their gamble is that the clothes bought for novelty will prove sufficiently rewarding in service to initiate the essential repeat-order business on which a stable fiber market must be built.

Confident in their products, the chemical firms are showing no sign of easing up on their consumer-selling efforts. Carbide has promised that Dynel promotions will soon match those now being conducted by Du Pont and Chemstrand. And the latter is trumpeting to the trade (through giant presentations in textile dailies) that the company's fall promotions will be seen by nearly 100 million readers.

Meanwhile, to consolidate the revolutionary gains already accomplished, the fiber makers are working closely with progressive mills and cutters to standardize synthetic blends, processes, and dyeing techniques. Badly needed is a series of standard fabric types that textile processors beyond the mill level can handle with confidence. Most cotton, wool and silk is woven into a comparatively few fabric types that have been unchanged for generations. But because of the current experimentations and a desire to capitalize on the novelty features, there is no hint of such stability for the synthetic-containing fabrics.

The establishment of such standards will probably be the synthetic's last great battle in winning a place for themselves in the textile world. And from every indication, it will be the chemical firms, again, that will take the leadership in accomplishing that revolutionary goal.

•

**New Literature:** Recent offerings from the industry's sales departments:

• Dow Corning Corp. (Midland, Mich.)—"Tall Tales and Fabulous Facts," a 10-part collection of the company's silicone advertisement se-

## Marketing on Manhattan

THE FIRST EXHIBIT of Dominion chemicals opened last week to a lightning storm of photographers' flashbulbs in the Canadian consulate's lower concourse show room at Rockefeller Center, New York.

For the next two months the showing will catch the eye of idle strollers, building "prestige" for the Dominion's burgeoning industrial machine. Although it can't act as a direct selling medium for exporters (in the sense of last month's footwear exhibit or September's sportswear show), Canadian marketers are using the event as an excuse for an extra round of visits to large U.S. customers, inviting them to the showroom for a look at other industrial chemicals from north of the border.

The exhibit itself was organized by Ottawa's Trade & Commerce Dept. Firms invited to participate were those with a heavy stake in the export trade. This market is, of course, an essential one for Maple-Leaf manufacturers. Of last year's record $800-million chemical output, approximately $124 million's worth was sold outside the country—62% went directly across the border into the United States. Moreover, this year's capital expenditures on chemical expansions is exceeding $200 million. As a result, the current Manhattan exhibit makes good sense for Canadian chemical makers—and provides an eye-opening glimpse of the Dominion's diversified chemical operations.

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• Nitrogen Div., Allied Chemical & Dye—"Crystal Urea (Carbamide)," an 8-page booklet on its uses and properties.

• Quaker Oats Co.—"Furfuryl Alcohol," a 28-page booklet on its commercial handling, properties, and established uses.

• Carbide and Carbon Chemicals Co.—"Aldehydes," a 36-page "family book" that discusses the 14 aldehydes now sold by Carbide in commercial quantities.

•

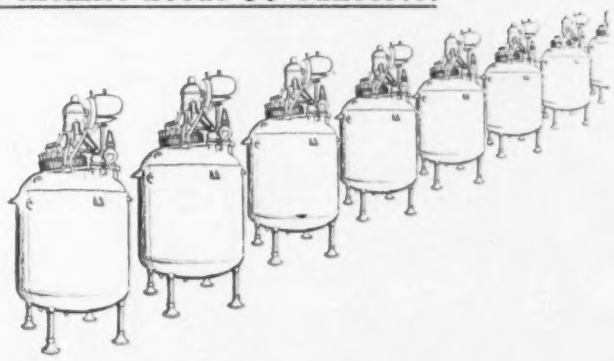
**St. Louis Branch:** The Celanese Corp. of America has established a branch of its Chicago district sales organization at St. Louis, Mo. Henry Jamison will be in charge of the new office.

### Paste-Pot Pallet

BYPASSING the pallets, but taking advantage of palletized handling economies, Monsanto Chemical is now offering "unitized" carloads of bagged phthalic anhydride that can be unloaded by forklift truck. Savings: four man hours against a normal 15.

The palletless units are built up simply by pasting together the individual paper bags—25 to a unit—in a pinwheel design. The bottom layer of bags is glued to a disposable fiberboard sheet. A typical 500-bag carload is prepared by stacking eight units in one end of the car, 10 in the other, and filling the center space with 50 unglued bags to provide maneuvering room for the lift truck during the unloading operation.

## This research chemist needs 30 ounces...



## and this company needs 30 tons a year...

# Yet—for their Fine and Special Chemical requirements, both depend on BAKER & ADAMSON*

**America over,** production and research men alike rely on Baker & Adamson as their most dependable source of fine and special chemicals *no matter what their needs!* They know that B&A's extensive and versatile production facilities are geared to produce fine chemicals of the same high purity in *tons* or in *ounces*... whether for product development or for commercial production.

**Such adaptability** can mean much to you, too. For example, among the 1,000 purity products that bear the B&A Shield of Quality are a number which may readily fit your particular requirements. Or if you need a special chemical "tailor-made" to your specifications, possibly B&A can develop it for you, as it has for so many other users of fine chemicals over the years.

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3. Skilled, highly trained personnel.
4. Maximum technical service.
5. Long experience in serving the chemical industry.

Witco's Chicago plant produces metallic stearates, driers, vinyl stabilizers, fatty acid esters, gelling agents and other chemicals.

Some of these products are also produced in Witco's plant at Brooklyn, N. Y.

At Perth Amboy, N. J., Witco manufactures asphalt and asphaltic products of many different kinds.

Asphalt and asphaltic specialties are also produced in Witco's Pioneer Asphalt Division plant at Lawrenceville, Ill.

*Here are a few of the many chemicals and chemical products manufactured by WITCO...*

Aluminum Octoate
Asphalt
Asphalt Specialties
- Automobile Undercoatings
- Rust Preventives
- Sound Deadeners
- Vibration Dampeners

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Copper Hydroxy Naphthenate
Copper Linoleate
Copper Naphthenate
Copper Oleate
Driers
- Naphthenic Acid Driers
  - Lead-Cobalt-Calcium
  - Manganese-Zinc-Iron
- Octoic Acid Driers
  - Lead-Cobalt-Zinc
- Witail® (Tall Oil) Driers
  - Lead-Cobalt-Manganese

Esters
- Butyl Oleate
- Butyl Stearate
- Dibutyle Adipate
- Dibutyl Phthalate
- Methylcyclohexyl Stearate

Lead Linoleate
Lead Oleate
Metallic Stearates
- Aluminum
- Lithium

Metallic Stearates—*Continued*
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- Iron
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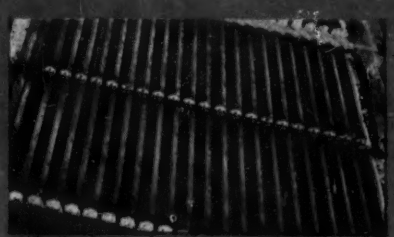

Witco's plant at Eunice, N. M., produces channel black. Channel and furnace blacks are also produced by Witco-Continental plants at Sunray and Big Lake, Texas, and at Waxlake, La.